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PROCEEDINGS & TRANSACTIONS

OF THE

CROYDON

NATURAL HISTORY AND SCIENTIFIC SOCIETY.

FEBRUARY 19, 1901, to JANUARY 21, 1902.



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PROCEEDINGS
OF
THE CROYDON NATURAL HISTORY AND
SCIENTIFIC SOCIETY.

1901—1902.

Thirty-second Annual Meeting,

Held at the Public Hall, Croydon, January 21st, 1902.

JAMES EPPS, Jun., F.L.S., in the chair.

The Statement of the Accounts for 1901 was approved.

The following gentlemen were elected the Officers of the Society for the ensuing year, this being the first election under the New Rules:—

President.—JAS. EPPS, Jun., F.L.S.

Vice-Presidents.—EDWARD LOVETT; HENRY T. MENNELL, F.L.S.;
WILLIAM WHITAKER, B.A., F.R.S., F.G.S.

Hon. Curator of Museum.—N. F. ROBERTS, F.G.S.

Hon. Lanternist.—J. H. BALDOCK, F.C.S.

Hon. Librarian.—ALFRED ROODS.

Hon. Treasurer.—F. J. TOWNEND, 11, Park Hill Rise, Croydon.

Council.—W. BRUCE BANNERMAN, F.S.A., F.G.S.; J. EDMUND
CLARK, B.A., B.Sc., F.G.S.; H. D. GOWER; J. M. HOBSON,
M.D., B.Sc.; E. A. MARTIN, F.G.S.; J. WATSON SLACK;
W. W. TOPLEY.

Hon. Secretary.—GEORGE W. MOORE, 15, Dornton Road, South
Croydon.

Anthropological & Archæological Committee.—H. C. COLLYER, Breakhurst, Beddington; J. M. HOBSON, M.D., B.Sc., Morland Road; A. J. HOGG, 5, Cargreen Road, South Norwood; E. LOVETT, West Burton, Outram Road; J. O. PELTON, 26, Friends' Road; N. F. ROBARTS, F.G.S., 23, Oliver Grove, South Norwood; J. WATSON SLACK, 27, Birdhurst Road; G. CLINCH, F.G.S. (Secretary), 22, Nicholson Road.

Botanical Committee.—J. EDMUND CLARK, B.A., B.Sc., F.G.S., Lile Garth, Ashburton Road; A. FITZGERALD, 93, Addiscombe Road; W. MURTON HOLMES, Glenside, St. Peter's Road; Miss KLAASSEN (Secretary), Aberfeldy, Campden Road; H. T. MENNELL, F.L.S., Park Hill Rise; H. FRANKLIN PARSONS, M.D., F.G.S., Park Hill Rise; Mrs. PARSONS, Park Hill Rise; C. E. SALMON, Clevelands, Wray, Reigate; E. STRAKER, Wallington.

Geological Committee.—W. BRUCE BANNERMAN, F.S.A., F.G.S., Sydenham Road; G. J. HINDE, Ph. D., F.R.S., F.G.S., Avondale Road; A. J. HOGG, 5, Cargreen Road, South Norwood; W. MURTON HOLMES, Glenside, St. Peter's Road; G. W. MOORE, Bryndhurst, Dornton Road; H. FRANKLIN PARSONS, M.D., F.G.S., Park Hill Rise; N. F. ROBARTS, F.G.S. (Secretary), 23, Oliver Grove, South Norwood; W. W. TOPLEY, 3, Marlborough Road, South Croydon; THOS. WALKER, C.E., Warrington Road; W. WHITAKER, B.A., F.R.S., F.G.S., Freda, Campden Road.

Meteorological Committee.—F. CAMPBELL-BAYARD, LL.M., F.R. Met. Soc. (Secretary), Cotswold, Wallington; J. EDMUND CLARK, B.A., B.Sc., F.G.S., Lile Garth, Ashburton Road; THOS. CUSHING, F.R.A.S., Chepstow Road; BALDWIN LATHAM, M.I.C.E., Duppas House.

Microscopical Committee.—Rev. R. K. CORSER, 27, Park Hill Road; T. A. DUKES, M.B., B.Sc., 16, Wellesley Road; E. LOVETT, West Burton, Outram Road; W. MURTON HOLMES, Glenside, St. Peter's Road.

Museum Committee.—J. M. HOBSON, M.D., B.Sc., Morland Road; E. LOVETT, West Burton, Outram Road; H. T. MENNELL, F.L.S., Park Hill Rise; H. FRANKLIN PARSONS, M.D., F.G.S., Park Hill Rise; N. F. ROBARTS, F.G.S. (Secretary), 23, Oliver Grove, South Norwood; F. THOMPSON, Lynton, Haling Park Road; W. WHITAKER, B.A., F.R.S., F.G.S., Freda, Campden Road.

Photographic Committee.—J. H. BALDOCK, F.C.S. (Lanternist and Recorder), Overdale, St. Leonard's Road; H. D. GOWER (Portfolio Secretary), 55, Benson Road; R. F. GRUNDY, 8, Havelock Road; A. ROODS, 67, Thornhill Road; A. J. WEIGHTMAN, Endsleigh, 11, Chepstow Road; C. L. FAUNTHORPE (Secretary), 25, Derby Road.

Zoological Committee.—J. H. BALDOCK, F.C.S., Overdale, St. Leonard's Road; J. C. CROWLEY, 16, Chatsworth Road; R. A. CROWLEY, 4, High Street; H. D. GOWER, 55, Benson Road; E. A. MARTIN, F.G.S. (Secretary), 23, Campbell Road; ALFRED ROODS, 67, Thornhill Road; C. THORPE, Selborne, Chatsworth Road.

Address of the President,

JAMES EPPS, Jun.

LADIES AND GENTLEMEN,

It has been the custom, I believe, in past years for the President to give a *résumé* of the work of the Club during the past year. I will not take upon myself the responsibility of entirely breaking this old custom, but will, in the briefest possible way, run through the past year's work, after which I will, with your permission, read my paper, entitled "The Life of Thomas Edward; the Great Scotch Naturalist."

I now realize the difficulties of a President on such an occasion as this. It appears to me that he must not confine his remarks to any one subject, or he may be looked upon as favouring his special and pet subject at the expense of others; so to get over this difficulty I think the best way is to take a general subject, which I hope will be of interest to the majority.

We all started the year, I am sure, with the very best intentions—when is the time when we do not? What those good intentions have led us to accomplish, you will be better able to judge for yourselves a little later in the evening.

At our first meeting, in January, your late and able President, Mr. Whitaker, retired, which I am sure we all regretted—not without first, thanks to him, clearing up the house and putting everything into shape.

On February 19th I had the honour of taking the Presidential chair. On the same evening Mr. J. P. Johnson read a paper on neolithic stones found on the North Downs near Sutton. From his paper one could see he had been a most enthusiastic and successful hunter after these prizes. He exhibited numerous specimens.

Mr. Bayard, as Secretary of the Meteorological Section, read his Annual Report (see Transactions, p. 1), followed by the Report of the Secretary of the Botanical Section, read by Dr. Parsons in the absence of Mr. Mennell. The Report appears later in our Proceedings.

On March 19th Professor Garwood, M.A., F.G.S., read a most interesting and instructive paper, entitled "A Trip round Kanchenjunga." The lecture was illustrated by a most beautiful series of photographic and telephotographic slides. The clear

and detailed description given by the lecturer, as the slides passed slowly in panoramic order through the lantern, of the exquisite ranges of snow-clad peaks, ranging from 20,000 to 28,000 ft. above sea-level, the awful avalanches, the wonderful virgin forest covering the lower slopes, and passes with their mountain torrents wearing their way through them as if anxious to arrive at the lower lands, was most fascinating, and made us almost feel we were part of his touring party. Those members who failed to attend lost more than they were aware of. Prof. Garwood was accompanied on the tour by Signor Sella, whose photos cannot be too highly praised.

At the monthly meeting on April 13th, Professor Haddon, M.A., B. Sc., gave the members a most interesting paper entitled "Pagan Survivals in Modern Britain," illustrated by a fine series of lantern slides. Owing to what Professor Haddon termed the glaciation of England and parts of Scotland by the Anglo-Saxon race, with more prosaic and less imaginative natures than the Celtic peoples, it is necessary to look for the relics of Paganism in the folk-lore or learning of the lower order of people of the British Isles, and chiefly in Ireland. There are different grades of mankind, which for the purposes of his lecture Professor Haddon termed savages, barbarians, and civilized; and amongst the last the lowest orders, at least in primitive places, are analogous to the savages, and are termed "folk." Many of the customs still found prevalent among them and their lore or learning are simply survivals of old pagan customs and legends which, though Christian meanings have in some instances become associated with them, naturally retain much of their original forms and significations. This is owing to the fact that, whereas Christianity has existed nearly two thousand years, the much longer prevalence of pagan customs, prior to the introduction of Christianity and under forms of comparatively high civilization, has necessarily influenced the minds and characters of the people. Examples in many forms and from many countries rendered the subject very interesting; and the lecture was well illustrated by lantern slides.

At the ordinary monthly meeting held on May 21st, before the paper of the evening was read, the Secretary stated that a petition, signed by over two hundred burgesses of Croydon, chiefly in the Norwood Ward, had been presented to the Croydon Town Council, requesting them to consider the Club's suggestions for making a Public Museum in the mansion standing in the newly purchased estate at Grange Wood, and that following the presentation of the petition a deputation, consisting of the President, Mr. Whitaker, Dr. Parsons, Dr. Hobson, and Mr.

Moore, had waited on the Roads Committee, who had this matter before them, and had placed their wishes before them. They had been very graciously received, and had been promised by the chairman that the suggestions of the Club should have their careful consideration.

The President then suggested that the Secretaries of the respective sections should approach the members of their sections with the object of ascertaining what objects would be forthcoming for the Museum should they obtain the rooms asked for, and in order that a rough estimate might be made of the cost of the necessary cases.

Mr. L. A. G. Filon, M.A., then read his paper, entitled "Astronomy without a Telescope, with special reference to the study of Meteors and Shooting Stars." The lecturer deplored the fact that the want of telescopes and appliances discouraged so many who would otherwise become eager students of astronomy. A large field, however, still remained for naked eye observations. Thus the study of magnitudes, which in many cases can be and is pursued with the naked eye, has led in recent years to some of the most startling discoveries in stellar astronomy.

Passing next to the investigation of meteors, which are almost entirely studied with the naked eye, the principal characteristics of their appearance were pointed out, and a classification into shooting stars, fireballs, and aërolites was attempted. The radiant point corresponding to each shower was defined, and the peculiarities of some of the best known yearly showers were pointed out.

Some of the applications of meteor observations—such as the testing of certain nebular theories, the influence of the distribution of meteor orbits on the meteor theory of the sun's heat, and the determination of the height of the atmosphere by simultaneous observations of a meteor at different places—were then discussed.

The lecture was a very interesting one, and was illustrated by a few lantern slides, and concluded with a description of the practical method of recording observations which has been used by the lecturer in his work at Cambridge Observatory.

The first meeting of the Autumn and Winter Session of the Club was held on Tuesday, September 17th. A very fair number of exhibits was shown. As usual on this occasion, no paper was read.

At the monthly meeting held on the 15th October the new Rules of the Club were presented by the Council to the members for their acceptance, but as it was thought that sufficient time could not be spared for a full discussion of them, it was proposed

by Dr. Hinde, and seconded by Mr. Holmes, and resolved that a Special Meeting be called for that day week for the purpose.

Mr. J. Edmund Clark then read his paper entitled "The Ancient British Village near Glastonbury, called the Avalon Village." In order to explain the conditions existing when this lake village was built, Mr. Clark gave a short sketch of the geology of the surrounding country. The greater part of the whole region is less than twenty feet above the sea, part being actually under high water mark. The village of Avalon is about one mile from Glastonbury, between that town and Godney. Attention was first called to it in 1892 by Mr. Arthur Bulleid, who noticed some mounds rising from the low tract of land, which on examination proved to be the site of the ancient British village, comprising sixty to seventy hut circles surrounded by a palisade.

The land was, by the generosity of the owner, given to the Glastonbury Antiquarian Society, who undertook the interesting work of excavation. Mr. Clark described in detail the construction of the foundations, and showed by numerous photographs the wood piles, *in situ*, upon which the village was formed, and he suggested what the upper portion most probably resembled.

He also showed, by means of lantern slides, numerous objects discovered, including bronze bowls, plain and ornamented; pottery with designs that indicate Belgic origin; implements of iron, as weapons, billhooks, files, saws, and gouges; spindle whorls and bone combs for weaving, many of which were ornamented. Glassware, in beads and rings, amber and jet ornaments, were also found. These objects are now to be seen in the Museum at Glastonbury.

There were but few human bones, the bones found being principally those of wild and domestic animals.

A hearty vote of thanks was given to Mr. Clark for his very interesting paper.

At the adjourned ordinary meeting held on October 22nd, a very fair number of members were present, and the Rules were fully discussed, and notice was given that they would be presented for acceptance at the November meeting.

At the November ordinary meeting held on the 19th, the new and revised Rules of the Club were formally approved of and passed, and notice was given that they would take effect on the 1st January, 1902. Dr. Hobson then read his paper entitled "Is Photography a Fine Art?" Dr. Hobson claimed for photography that it was not an art dependent on mechanical process, but that the photographer could so identify himself with his work that the result could be ranked amongst high artistic

productions, and that by delicacy of manipulation, careful and artistic choice of views and other subjects, there is in photography as much of the essentials of a fine art as in a drawing or painting, which depends on the delicacy and accuracy of the eye and hand of the draughtsman or painter, and upon his perception and observation and sense of beauty. Dr. Hobson had some very beautiful lantern slides thrown on the screen to illustrate his subject, and pointed out the artistic merits of the various pictures.

A discussion followed, led by Mr. Baldock and several other members, the general consensus of opinion being that photography should rank as a mechanical rather than a fine art, however good the results obtained. Dr. Hobson replied to the effect that, notwithstanding the generally expressed adverse opinion, he considered that he had made out his case in the affirmative.

On Tuesday, December 17th, Dr. Hobson presented to Masters Epps and Croft the prizes given by him for the best pictures in the Juvenile Photographic Competition.

Mr. Edward Lovett then exhibited and described a collection of objects from a settlement of the late Stone age, on the north coast of Ireland, which was very much appreciated by all the members present.

The four sections showing the greatest activity during the last twelve months were the Photographic, the Geological, the Botanical, and the Meteorological; these have all done good work. I very much regret to find that the other sections are dormant at the present time; it may be that this is the winter of their discontent, and we must trust that this discontent may soon be made glorious summer by the rising of some fresh and active members.

The Reports of our Sectional Committees will be found in the forthcoming Transactions of the Society.

Three local occurrences have taken place this year which interest the Society—first, the purchase of Croham Hurst; second, the purchase of Grange Wood Park by the Croydon Corporation, the latter having been opened to the public as a recreation ground; and third, the discovery at Thornton Heath Railway Station, by Mr. Towse, the contractor's engineer, of a fine collection of mammalian remains, consisting of bones and teeth of the *Elephas antiquus*, *E. primigenius* (mammoth), and horse, *Equus caballus*. The find is remarkable, as being the first time that any remains of *Elephas antiquus* are recorded to have been discovered in the neighbourhood of Croydon.

Returning for a moment to the subject of Grange Wood Park,

as you are all doubtless aware, in the grounds of this beautiful estate stands a fine mansion, and I was in hopes that before this a Public Museum would have been formed there under the superintendence of our Society; but I regret to say that those hopes, now I hear that the Corporation of Croydon is unable to find the small sum of two hundred pounds for cases, have been blighted, and I fear this scheme is therefore at an end.

There is no doubt that the time has arrived when this Society must rouse itself. It has slept too long. Without its own Lecture Hall and Museum it is severely handicapped.

My opinion is our Society is unable to offer sufficient attractions and comforts to encourage would-be members.

The Club at the present time numbers only two hundred and twenty members, and I regret to say that we seldom see more than sixty or seventy of these at our monthly meetings, and I am sure—I am very sorry to have to say it—that there are not more than thirty members who work hard for the Society, and they do it because they love Natural Science, and would do their utmost, I know, to make such a Society as this successful.

I have a scheme in my mind which, on a future occasion, if I receive any supporters, I shall be pleased to put before you.

I think our members have too long been satisfied with our out-of-date surroundings, and should severely reproach themselves for having allowed the most valuable and beautiful collection of our late friend Mr. Philip Crowley to have been lost to them. I have in my mind not the slightest doubt that had we had a suitable museum our late friend would have passed part, if not all, of his collection to us.

We have been justly punished, and I ask, are we going to be wise and take a lesson by this reprimand, and take some immediate steps to be prepared in the future for any collections that may be within our reach?

Again, what an incentive it would be to members to have something to work for. I can quite understand a man not offering his valuable collection to a Society that had no suitable museum, and he is perfectly justified in not doing so. If we love our Natural Science, we should be prepared to make a sacrifice of either time or money for it.

I trust you will seriously consider this matter, which is urgent, and decide whether it is to be, or not to be.

Excursions during the summer months were made, as in previous years, and were on the whole well attended.

I am pleased to say that the Council was this year in a position to hold a Soirée, and I personally hope that it may in future be held regularly, as not only has it a great tendency to bring about a friendly and sociable feeling amongst its members, but it allows the Borough of Croydon to know that this long

established Natural History and Scientific Society exists, and is willing to enrol new members.

Our Balance Sheet, which our Hon. Treasurer has put before us, is in a way satisfactory—*i. e.* the debit balance of the past ten years has been changed into a credit balance, which, if small, leaves us in a sound position.

Our members this year number 206; we have, I regret to say, lost by death 5, resigned 14, and 6 struck off. On the other hand, 24 new members were elected.

THE LIFE OF THOMAS EDWARD.

As members and fellow-workers of a Natural History Society, I think a very fair and reasonable question to ask one's self is—To whom are we to be grateful for the immense amount of knowledge of Natural History that has been handed down to us and published at different periods? Who have those great workers been who have spent their lives in research and study? These are some of the great men—Edward, White, St. John, Ray.

How thankful ought we to be as business men, whom circumstances have thrown into a different channel of life,—a life far too civilized and far too unnatural to be in a position to study Nature's ways for ourselves. How deep in darkness should we be at the present time had it not been for these great workers! For instance, what is the average routine life of a City man of the present day? This is about it:—Rise at 9, breakfast on reaching the dining-room, with newspaper in front of him. 9.15, just three minutes to catch the train. Newspaper to town office at 10. Leave at 6, train home, dinner, evening paper, smoke, and then to bed. To-morrow, and week after week, the same. What a comparison to the life of a White, an Edward, or a St. John.

What a charming, quiet, and ideal life is that of the naturalist compared to that of the rushing life of the citizen. Of course, it would never do for all men to think alike, or for all men to be naturalists; but at the same time City men might cease to live at this high pressure system as at present, and they might interest themselves more about the natural laws that are paramount on this planet.

There is no doubt that the people of the present day have far greater opportunities for studying Natural History in all its branches than the people of fifty years ago. Look for a moment at the large numbers of fine museums, both in this and other countries; but I fear it is excitement only that interests the masses of to-day.

It was my intention to entitle this paper "The Lives of our Great Naturalists," but I soon found time would prevent my

doing more than to deal with the life of one of these great men. I have therefore chosen Thomas Edward, as the least well known.

A naturalist is not made, but born. The naturalist may be a man in the humblest station of life, or he may be in the highest. Thomas Edward was of the former class. He was born in the year 1814, of parents not wealthy, his father before marriage being in the militia; after marriage he became a handloom cotton-weaver.

Edward at a very early age commenced to show the latent love for animals which was to be the ruling passion of the man's life. Where animal life existed, there Edward was in his glory. In his infantile days he was found catching flies, afterwards making the acquaintance of all the cocks, hens, and pigs in the village.

His great delight, as he advanced in age, was roaming away, by way of Dee-side, Ferryside, and the Inches, in search of tadpoles, horse-leeches, rats, or any other living thing; the prizes obtained on such occasions being carefully conveyed to his parents' house, which often brought him into trouble with his parents or their neighbours.

Although I admire Edward to the highest degree, I must allow he was not an obedient child; it may have been owing to the want of proper parental influence, or to the too frequent failing of parents in relying too much on corporal punishment.

Edward appears to have led for many years of his boyhood an absolutely wild life; off early in the morning and home late at night, none saw him in the interim; very often he was alone, sometimes with other boys, bird-nesting, rat-catching, crab-hunting, but on his return always laden with many trophies. His mother endeavoured to check his ardour by throwing his animals and birds' nests away, and he was strictly forbidden to bring any more home. His failing to comply with these instructions often brought him into contact with his father, who was not backward at punishing his son with the strap. Flogging failing to cool the ardour of their son, locking him up was tried; this to young Edward was a much greater punishment, but he even then often evaded his parent's efforts, and on one occasion he even went off with only a piece of his mother's skirt tied round him, his own clothes having been taken away from him. I am sorry to hear the boy was found to be thoroughly incorrigible; he was self-willed and stubborn, and one might call him a young ne'er-do-well.

An amusing little incident, showing the determined character of the lad, I should like to mention. One day, whilst Edward was out on one of his excursions with some other lads, one of the party sighted a "byke" (a wasps' nest) on a tree. A byke was looked upon as a great trophy. Young Edward mounted

the tree (on being left by his companions, who had run away on being attacked by the wasps); he soon reached the nest, but he was now puzzled as to how he could remove this great prize without damaging it. A thought at last struck him, that his shirt was available; so he soon disrobed himself, and again approached the nest. He soon removed the byke, not without first being badly stung, and, having placed it in his shirt and securely tied it up, made for home. He smuggled it into the house, and went to bed; his brother, however, noticing his nudity on getting into bed, gave him away by calling the attention of his mother to Tom's loss of his shirt. This brought his father forward, who bid him say what had become of his shirt, and made him produce it with the wasps' nest carefully tied up in it. Tom for his trouble got the strap, and the bykes' nest was destroyed.

At last, at the age of four years, Edward was sent to school; this, however, did not prevent him from continuing his country rambles, and he was constantly playing truant; sometimes he would carry his birds, rats, and leeches with him to school; these during the morning often escaped, and caused much distraction from lessons, so that he was constantly being flogged, and he was expelled for the same reason from three schools.

One day on one of his excursions he picked up a live adder, taking it for an eel, and conveyed it home, having on his way to strip and wade across a stream, with his clothes in one hand and the adder in the other. On arriving home he caused great consternation, and was advised by an elder to take it up to Dr. Fergusson, who was also a chemist and collector. This he did, and the beast was put into a bottle of spirit, and Edward received a small remuneration.

After his expulsion from his third and last school, he went to work at a tobacco spinner's; he got on fairly well with his employer, he being of a similar turn of mind to Edward, and giving his attention to bird-breeding. Edward kept him well supplied with nests and young and old birds; in return for these favours he was allowed to keep rabbits. Tom remained in this situation for about two years, and was then anxious to better his position, his wages here being only four-pence a week.

He next went to a factory at Grandholm, about two miles from Aberdeen. Edward was charmed with the surroundings of his new situation; it stood in a beautiful valley teeming with nature and natural objects, and contained such quantities of birds, insects, and plants. He appears to have been very much struck with the wonderful note of the sedge warbler—also called the English mocking-bird and the Scottish nightingale—and wondered how such a wee thing could imitate so closely almost any bird.

At the sight of his first Kingfisher, how charmed he was. He says :—" What a beautiful bird, what a sparkling gem of Nature, resplendent in plumage and gorgeous in colour, from the bright turquoise-blue to the deepest green and darker shades of copper and gold ! I was greatly taken with its extraordinary beauty, and much excited by seeing it dive into the stream. I thought it would drown itself, and that its feathers would eventually become so clogged with water that it would not be able to fly. Had this happened, which of course it did not, my intention was to have plunged into the rescue, when, as a matter of course, I would have claimed the prize as my reward." How feeling and how boylike !

After two years his father apprenticed his elder brother to a baker, and Tom to a shoemaker. Tom's life during his apprenticeship was an unhappy one. He in his spare time collected butterflies, eggs, &c., and, if at any time his master came across any of Tom's collection, he threw them away. His master being a drunkard, and having no sympathy with Tom's ambition, he even went so far as to cruelly ill-use the lad. Tom at last ran away ; he was anxious to go to sea, but he could not obtain his parents' consent ; so he made a determined tramp to reach the Kettle, which is about one hundred miles from Aberdeen, to find his uncle. The reception he met on arriving there did not at all meet his expectations. The boy soon found he was not welcome, and felt anxious to return home.

In 1831 Edward enlisted in the Aberdeenshire Militia. His Natural History enthusiasm led him into a most awkward and dangerous position, for he was one day, whilst drilling, led to follow a brown fritillary butterfly that at the time was passing. This naturally was a great breach of discipline, and had not some lady friends of the captain, who were present, interceded, he would doubtless have been severely punished.

At the age of twenty-three years he married, and took up his quarters at Banff. He had a happy home, and a good wife, who was in no way opposed to his Natural History work, but who rather encouraged him, and he determined to make a collection.

Now, to his sorrow, did he feel the loss of a sound education ; he possessed no works on Natural History, and was consequently severely handicapped. He made regular nocturnal excursions with his gun, bottles, and botanical book, and was taken by his neighbours to be mad. For about fifteen years Edward continued these nocturnal excursions, covering a large area of ground. During the long winter nights he made cases, and arranged his objects.

After four years he had collected some nine hundred insects, and, on visiting his collection one day, he found his cases were all empty. His wife, on seeing the empty cases, asked him what

he was to do next. "Well," said he, "it's an awful disappointment; but I think the best thing is to set to work and fill them again." That statement was, I consider, philosophical, and shows a man with a most wonderful power of perseverance and determination. How many men out of a dozen would have made such a noble statement, and carried it into effect?

After a lapse of eight years his collection of Natural History objects had become considerable; he had some three hundred cases, all made by himself, and filled with birds, quadrupeds, insects, &c., and the next thing was, what was to be done with them?

He was never satisfied with his business, and he was anxious to raise money, in order that he might further his researches in Natural History. About that time a fair was held annually at Brandon, and Edward determined to publicly exhibit his collection. His first exhibit was in May, 1845. This exhibition turned out a success, and encouraged him to exhibit the following year.

Led on by success, he deemed his collection sufficiently large and complete to remove it to a more important place, and he chose the City of Aberdeen. He set about and overhauled his cases, and, where necessary, made additions; and, to please the public taste, arranged a few dramatic effects, such as "The Death of Cock Robin," "The Babes in the Wood," "Pussy from Home," &c. When the collection was deemed complete, he set out with a light and cheerful heart for the City of Aberdeen with the brightest expectations. His collection was now such a large one that it took six carrier's carts to convey it. With it he took his wife and five children. Edward chose the finest street in Aberdeen, and the man, when he had got all ready, must have proudly looked upon his exhibition as one the public would visit and admire.

What a disappointment was in store for the poor fellow; how innocent he must have been of the life of the citizen! When the exhibition opened there was no rush; the few who called were more interested in selling specimens to Edward than in admiring his collection; some came to consult him about their pets, as if he were a veterinary surgeon; the remaining few knew nothing of Natural History; and as to the metamorphosis of the caterpillar, few understood or cared. The only consolation Edward got was a few kind words from Dr. Macgillivray; he was very much pleased with the collection, but truly said, "The people of Aberdeen were not yet prepared for an exhibition of this kind." Edward, finding the attendance very small, thought it possible the admission was too high, so he reduced it to a penny; but the million never came.

Things were coming to a crisis. The rent of the shop had to

be paid, but he had no money to meet it. After three weeks he was deep in debt, and knowing this was agonizing to him. By the end of the fourth week he had completely lost hope; no one came to his collection; what could he do? No man could ever have been in greater trouble. He had his four weeks' rent to pay, his wife and five children to support, and nowhere to remove his collection to. To take his life was the thought that struck him—a cruel one, too, as it meant only the transmission of the trouble on to others—and he made for the sea. On reaching the beach he even went so far as to remove his hat and coat, and was on the point of making the fatal plunge, when a flocks of sanderlings lit upon the sands near him. This took his attention, and he was struck by seeing a larger and darker plumaged bird of different habits to the others. His curiosity was at once aroused, and he for the moment ceased to think of the reason of his visit to that spot. The bird rose, and he followed, stopped at last by reaching the mouth of the Don. The birds disappeared, and he became a sane man, and no longer had a wish to carry out his purpose. He retraced his steps, and wended his way homeward.

Only one course remained open to him, and that was to sell his collection for what it would fetch. It was another big blow for the poor fellow, and he had at last to part with his fine collection for £20 10s.

I cannot do better than quote from the 'Life of Thomas Edward,' the following:—"Edward had left Banff on the 31st of July, full of hope; after six weeks he returned to it full of despair. He had gone to Aberdeen with his collection, accompanied by his wife and family; he returned from it alone and on foot, without a single specimen of his collection, and without a penny in his pocket." What must that poor fellow's feelings have been?

Time heals our troubles, and so it did Edward's; and after a short time we see him once again at Banff under a roof with his wife and bairns.

It was not long before his ruling passion again reigned supreme, and we find him again starting on his nocturnal excursions. His wife must have understood her husband's nature exactly, and, instead of opposing him as many wives might well have done, and been excused for so doing when a large family of bairns are dependent upon a husband, she appears to have been his greatest help, and went so far as to spend her earnings in buying bottles for his insects, and powder and shot for his gun.

This system, that had grown on him, of stopping out all night in all weathers, at last told its tale, and Edward was subjected to attacks of cold and rheumatism.

During one of his outings with his gun he had a very serious

fall over a precipitous rock, and, falling on his gun, smashed it to pieces; this, although unfortunate, may have saved his life. This fall incapacitated him for a few weeks, and compelled him to sell a considerable portion of his newly formed collection.

His old and esteemed friend, the Rev. J. Smith, at this time came forward with some good advice, telling Edward to note down facts which came under his observation, in order that they might be published, and so might benefit others, at the same time giving him some works on Natural History. The good advice of his friend was after a time carried out, and he sent his observations to the '*Banffshire Journal*.' Edward, being an uneducated man, no doubt felt backward at writing articles to the scientific journals, as his friend advised him; but after a time he consented to his observations being sent to '*The Zoologist*,' on their first being looked over and corrected by his friend.

Edward, at the instigation of his friend the Rev. W. Boyd, afterwards published "*The Birds of Strathbeg*." This was published in the '*Naturalist*,' and was one of the first papers to which Edward attached his name.

In 1855 Edward had again to sell his collection of birds, being again pressed for money to meet the growing demands made upon him by his family; but three years afterwards we again hear of his having accumulated another fine collection.

He was now forty-four years of age, but, instead of being in the prime of his life, these nocturnal habits, and serious falls which at times he had sustained, were telling their tale on his system, and his health at last gave way, and he had an attack of rheumatic fever, which caused him to take to his bed for many weeks. The doctor had to be called in, and he censured him, and impressed upon him the fact that if he did not give up those night excursions he would not hold himself responsible for the result. Doctors, like lawyers, come expensive, and again Edward had to sell forty cases of birds and plants to cover the expenses of his illness.

This illness made him more careful respecting his health, and he now gave his attention to the Natural History of the sea-shore. It was in this branch of science that he gathered his most distinguished laurels. Edward was severely handicapped at first, for he had no boat and no dredges; but he found means of making traps, which he sunk along the coast, and which he periodically visited; he also found that the large fish were the best of fishers, and, by obtaining the stomachs of the cod and other large fish, he was able to procure the rarest of the testaceans and crustaceans. His daughters assisted him in this work by daily visiting the neighbouring fishing village, and twice a week they went to Macduff; one daughter was sent to Gardenstown,

where she lived, and sent per carrier the cods' stomachs twice a week.

Edward now had a large family, consisting of his wife and eleven children, and as science had not done, and appeared unlikely to do, anything for him, he determined to return to his cobbler's stool.

Time will not allow of my touching on numerous other incidents connected with this great naturalist's life that I should very much liked to have done, but must sum up my remarks by saying, Edward was a poor, sober, industrious, determined, and enthusiastic lover of nature. The love of nature was so engrossed into his soul that he was compelled to study her ways at all costs. Like many great men that have lived, he did not receive a fair share of praise or reward for the immense amount of work that he did—I fear, chiefly because he was a poor man; and, secondly, for the reason that he lacked a sound education, which prevented him from corresponding freely with those in a higher position in life; who, had they known of this indefatigable worker, might have pecuniarily assisted him; or it may have been that Scotch people are very reticent. They rarely speak of love or affection; it is all understood. It is said that a Scotchman will never tell his wife that he loves her until he is dying; therefore it may be that the Scotchman would not tell Edward that he loved and admired his life's work until he died.

I regret to find Edward did not think that his labours had been properly recognized, and this vexed him. I entirely agree and sympathize with him.

In conclusion, I will give his few last touching remarks from Smiles's 'Life of Edward.' He says:—"I had often been promised aid in the shape of books, but no such aid ever came. All my honours have come from a distance. I have kept the museum of the Banff Institution for about twenty-one years for I may say almost nothing (it was, I think, £2 a year), and, though the Linnean Society thought me worthy of being elected an Associate, the people here did not think me worthy of being an honorary member of their Society; so finally (1875) I betook myself to my old and time-honoured friend—a friend of fifty years' standing, who has never yet forsaken me, or refused help to my body when weary, nor rest to my limbs when tired—my well-worn cobbler's stool."

Not only was Edward's life a most interesting one, showing his ardent love for Natural History, and his great power of determination and perseverance; but he also added materially to our knowledge of the British sessile-eyed crustaceans. He collected over one hundred and fifty species in the Moray Firth, twenty of these being new species; and it is only necessary for those interested to read Bate and Westwood's 'History of the

British Sessile-eyed Crustacea' to see what practical and important help was given by Edward.

In the Linnean Society's 'Journal,' vol. ix. pp. 143-7, will be found "Stray Notes on some of the smaller Crustaceans," by Edward; he also sent many articles to 'The Zoologist' on various subjects from time to time. Edward also completed "The Birds of Strathbeg," which appeared in the 'Naturalist' at the instigation of his friend Mr. Boyd. Several new species found by Edward have, in honour to the great naturalist, been named after him.

On the 5th of April, 1866, Edward was unanimously elected an Associate of the Linnean Society, at the suggestion of Mr. Couch and Mr. Spence Bate, as an appreciation of the great help he had given them. Soon after Edward was made a member of the Aberdeen Natural History Society, and the following year he was presented with a diploma of the Glasgow Natural History Society.

He died on the 27th of April, 1886, in the seventy-second year of his age.

Summary of Proceedings, extracted from the Minutes.

At the meeting held 19th March, 1901, it was resolved that the Honorary Lanternist and Recorder be *ex officio* a member of the Council.

It was further resolved that the thanks of the Society be tendered to the Mayor and County Council of Croydon for their action in purchasing, and thus preserving to the public, Croham Hurst.

At the meeting of the 15th October a draft of the proposed new Rules of the Club was submitted, but its full consideration was postponed to an adjourned meeting to be held 22nd October.

At the adjourned meeting, 22nd October, the new Rules were fully discussed and approved, and notice given that they would be formally submitted to the meeting in November.

At the meeting held on the 19th November they were formally approved and adopted, and notice given that they would take effect on the 1st January, 1902.

The title of the Society, known originally as the "Croydon Microscopical Club" when it was founded in March, 1870, was subsequently changed to that of the "Croydon Microscopical and Natural History Club," and it has now been altered to that of the "Croydon Natural History and Scientific Society," the alteration to take effect, as stated above, from the 1st January, 1902.

The new rules, which were framed with the desire of making

the work of the Society as comprehensive as possible, will be found appended (Proc. p. cvii).

At the meeting held 17th December, notice was given that the Annual Meeting would take place on the 21st January.

Messrs. Corcoran and Weightman were appointed auditors of the accounts for the past year.

Excursions.

The following Excursions have taken place during the year, viz.:—

April 13th.—Visit to the Natural History Museum, South Kensington, of which Mr. G. W. Moore furnishes the following report:—

“A good number of members and a few friends met on Saturday afternoon, 13th April, with the object of seeing the Zoological Galleries and Whale House. Dr. Bowdler Sharp was unable to conduct the party, as had been arranged, but was represented by Mr. W. Pyecraft, to whom the Club is much indebted for the interesting manner in which he conducted the party through the galleries, explaining the arrangement of the specimens, and the objects for they were exhibited.

“Attention was first directed to the cases in the Central Hall, illustrating the theory of evolution, of mimicry, and change of colour in animals due to season and habitat.

“The whale-house was next visited, and attention called in passing to a model designed to illustrate the colouring of marine animals and fishes, *i. e.* dark on the back, and light, or almost white, on the ventral portions of their bodies. The whale-house contains a splendid exhibition of the Cetacea, from the common porpoise (fam. Delphinidæ) to the cachalot or sperm whale, and the whalebone whale (*Balæna mysticetus*). The different structures were carefully indicated, and attention specially drawn to the atrophied rudiments representing the lower limbs in the terrestrial Mammalia, also to the number of the bones in the paddles corresponding to that in the human arm and hand.

“Mr. Pyecraft then conducted the party through the Bird Gallery, arranged to illustrate as exactly as it is possible to do the habits of the birds under natural conditions.”

April 27th.—Excursion to Grove Park and Chislehurst, in connection with the Geologists' Association, to examine the sections in the Lower London Tertiaries opened up on the widening of this portion of the South Eastern Railway. Conductor, Mr. William Whitaker.

May 11th.—Rock Pit, Elmstead Lane, Chislehurst. Con-

ductor, Dr. H. Franklin Parsons, who sends the following notes of the excursion:—

“ On May 11th an excursion took place, under the guidance of Dr. Parsons, to Sundridge Park and Chislehurst. This was mainly of geological interest. The party, some of whom went by train and others cycled, met at the Rock Pit, Elmstead Lane. This is a large excavation in the beds of the Oldhaven series; here consisting of current-bedded layers of sand and pebble-gravel, with masses of shelly conglomerate. Fossils are numerous, especially the large oyster (*Ostrea bellovacina*), the shells of which are well preserved, those of other species being mostly so perished that they can scarcely be removed from the matrix. Some good photographs of the section were obtained.

“ About a quarter of a mile distant a heap of sandy material was examined, which had been brought up by a shaft from the new tunnel of the South Eastern Railway. In this material, coming from a greater depth, and probably from beneath a protective capping of London Clay, the fossils were better preserved than those at the Rock Pit, especially the shell *Pectunculus plumsteadensis*, which was extremely abundant, and often in perfect condition, with the two valves in place. Specimens were not unfrequent which were perforated by a round hole made by some whelk or similar predatory gasteropod.

“ From Elmstead the party went on to Chislehurst, and visited the ‘caves’ near the station. These caves are branching galleries driven into the hill-side in the chalk inlier, which here appears in the valley. They were doubtless made in former times for the purpose of getting chalk. The thin roof of chalk has in places given way, allowing the looser superjacent Thanet sand to fall into the tunnel beneath. When the fall is only partial, the result is a conical mound of *débris* on the floor of the tunnel, beneath a lofty dome-shaped roof formed by the Thanet sand; but ultimately the overlying mass completely falls in and blocks up the tunnel, the site of the fall being marked by a deep conical pit in the ground above. The wood over the caves is full of such pits. Tea at the ‘Bickley Arms’ concluded the day’s proceedings.”

May 27th (Whit-Monday).—Hever to Tonbridge. Conductor, the President. (See Report of the Botanical Committee.)

June 8th.—Cheam and Epsom, in connection with the Geologists’ Association. The route taken was first to the Cheam Brick Works, where sections of the Woolwich and Reading beds are seen; thence through Nonsuch Park, passing the scanty remains of Nonsuch Palace, built by King Henry VIII. as a rival to Wolsey’s Palace at Hampton Court, to the brickfields of

Messrs. Stone's at Ewell, where there are interesting sections in the Thanet Sands and Woolwich and Reading beds; continuing the walk past the springs of the Hog's Mill Brook, a large brick-field north-east of Epsom, showing Woolwich and Reading beds, was visited.

June 15th.—Excursion in connection with the Geologists' Association to Orpington for further examination of the Tertiary beds exposed in the widening of the South Eastern Railway.

June 22nd.—Excursion to Woldingham and Oxted. Conductors: Mr. H. T. Mennell (Botanical); Mr. N. F. Roberts (Geological). For botanical notes of the excursion, see Report of the Botanical Committee.

Geological.—Sections of clay with flints were seen between Woldingham Station and the chalk escarpment. Above Oxted chalk-pits is an outlier of Blackheath pebbles at a height of 868 ft. above Ordnance Datum. The walk was continued along the escarpment to the top of Titsey Hill, where "Plateau implements" have been found at 860 ft. above Ord. Dat. Retracing the road, Oxted chalk-pits (Lower Chalk) were visited, and the route thence passed over the firestone (Upper Greensand) and gault to Oxted.

July 6th.—Excursion to Keston Common and Holwood Park. Conductor, Dr. H. F. Parsons. (See Report of Botanical Committee.)

August 5th (Bank Holiday).—Excursion to Guildford and neighbourhood. Conductor, Mr. Baldock.

"This being a Bank Holiday, and a whole-day excursion, combined with lovely weather, a good muster of members, including several ladies, put in an appearance. The route followed was in exact accordance with Walker Miles's little book, Series 8, p. 267, which provided a truly beautiful walk of between seven and eight miles.

"On arriving at Guildford the party had dinner, which had been ordered beforehand, and then proceeded to view the old Castle and grounds; continuing, high ground was reached, from which a view was obtained of Hindhead and Blackdown, together with the Charterhouse Schools. Presently the Pilgrim's Way was reached, which leads up to the little chapel of St. Martha's at the summit of the hill, and from here a most beautiful panoramic view is obtained over the valley of Chilworth in front, and of Holmbury and Leith Hill on the right, and the North Downs on the left. Continuing on, a view of the clump of beeches is

observed, indicating the situation of the well-known view point, Newland Corner; and a little later the Irvingite church of Albury is passed, and the path followed direct to Shere, where tea was obtained at the well-known 'White Horse.' From there to the station was the only bit of high road traversed; all the rest was through paths, lanes, fields, and woods, making altogether as charming a walk as anyone could wish for."

September 14th.—Fungus hunt to Croham Hurst. Conductor, Dr. H. F. Parsons. (See Report of Botanical Committee.)

Reports of Sections for 1901.

ANTHROPOLOGICAL AND ARCHÆOLOGICAL COMMITTEE.

During the year 1901 there were four meetings of the Committee and four meetings of the Section. The following gentlemen have exhibited objects at the meeting: Messrs. H. C. Collyer, A. J. Hogg, E. Lovett, N. F. Roberts, and G. Clinch (Hon. Sec.).

A successful excursion to Croham Hurst, in order to inspect the sites of Neolithic dwellings there, was made on Saturday, March 16th, under the guidance of Mr. Clinch, and about forty members attended.

In addition to the ordinary exhibition and discussion of objects illustrative of local anthropology and archæology at the evening meetings, the chief piece of work which has been attempted during the year is the compilation of a list of all local discoveries bearing on the subjects with which the Committee deals. Little more than preliminary work has been accomplished at present, but it is proposed to continue the task as quickly as may be found compatible with that accuracy and precision of detail which alone will make the list permanently valuable. The assistance of any member of the Society who may be able to give precise facts of unrecorded discoveries will be gratefully welcomed. The Council has kindly made a small grant for the purchase of maps, upon which it is proposed to mark the sites of the various discoveries, and the periods to which they belong.

Now that the scope of the Committee has been so widened as to include the subject of archæology, it is hoped that the attendances at our sectional meetings and general interest in our work will appreciably increase.—GEORGE CLINCH, *Hon. Sec.*

BOTANICAL COMMITTEE.

During 1901 the Botanical Committee have continued the investigation of the flora of the commons and wild tracts in the neighbourhood of Croydon, and the number of species recorded has greatly increased. The commons under investigation are (the figures refer to the number of species recorded for 1900 and 1901):—

	1900.	1901.	Recorders.
Shirley Hills		166	{ J. Edmund Clark, B.A., B.Sc., and
Croham Hurst ..	213	226	{ H. T. Mennell, F.L.S.
Mitcham Common	107	461	{ Arthur Bennett, F.L.S.
Riddlesdown	129	167	{ A. Fitzgerald and
			{ C. E. Salmon.
Hayes and West Wickham } Commons	125	281	Dr. H. Franklin Parsons.
Keston Common..	100	231	Dr. H. Franklin Parsons.
Duppas Hill		69	W. Murton Holmes.

Among the excursions of the Club of botanical interest may be mentioned those of:—

May 27th (Whit-Monday). To Hever and Tonbridge. Conductor, the President.

June 22nd. To Woldingham and Oxted. Botanical conductor, Mr. H. T. Mennell, F.L.S.

July 6th. To Keston Common and Holwood Park. Conductor, Dr. H. Franklin Parsons.

Sept. 14th. To Croham Hurst; fungus foray. Conductor, Dr. H. Franklin Parsons.

Botanical notes on these excursions will be found under the heading "Excursions" (Trans., p.).

Evening botanical rambles have been made on:—

May 16th. To Croham Hurst. Conductors, Mr. J. Edmund Clark, B.A., B.Sc., and Mr. H. T. Mennell, F.L.S.

June 20th. To Hayes Common. Conductor, Dr. H. Franklin Parsons.

July 18th. To Riddlesdown. Conductor, Mr. C. E. Salmon.

Notes on the Club Excursion on May 27th, to Hever, Penshurst, and Tonbridge. (By Dr. H. FRANKLIN PARSONS.)—The first part of the walk from Hever to Penshurst lay mostly over the Wadhurst clay, and the flora, though rich in species, presented few special features. In one hedge the two forms of *Pyrus Malus* were observed, viz. *acerba*, the wild crab, smooth, with small leaves and spreading, almost spiny branches; and *mitis*, an escape from the cultivated apple, with larger and paler green leaves, downy underneath, as are also the young branches. Other plants observed were *Carex pendula* and *Sedum Telephium* and *reflexum*; the two last on the Tunbridge Wells sandstone.

From Penshurst to Tonbridge the route lay for a good part of the way through alluvial meadows and damp copses by the river Medway, and here several interesting plants were found. The bitter-cress, *Cardamine amara*, found last year at Cowden, was plentiful in many wet places, and *Hottonia palustris*, the "water violet,"—really more nearly allied to the primrose,—was found in several pools. This plant has a habit of growth shared among British plants only by the bladder-wort (*Utricularia*); the stem bears at its upper part a whorl of branches spreading like the spokes of a wheel; these float in the water and form a kind of raft supporting the peduncle, which rises from the centre of the whorl high out of the water. Unlike many submerged aquatic plants, both *Hottonia* and *Utricularia* have showy

flowers, adapted for insect fertilization, and this mode of growth carries the flowers well above the surface of the water, so that flying insects can gain access to them.

Willows were plentiful by the margin of the river and ditches, among them being observed the male of the common tree willow, the crack willow (*Salix fragilis*). Even without the catkins, the male of the crack willow is easily distinguished by its foliage, the leaves being much broader than those of the female, darker green and shining; it is, however, readily recognizable as belonging to the same species by the twigs, when bent, snapping off with a straight fracture where they join the parent branch, a character peculiar to this species of willow. The male of this willow and of the allied species, *Salix alba*, is much less common than the female; the long rows of pollard willow trees by the sides of streams and watercourses which form so prominent a feature in the landscape in many low-lying districts generally consisting of female trees. Hence the ripe fruit and cottony seeds are more rarely seen on these willows than on other species, as the sallows, *Salix cinerea* and *caprea* (in which the male catkins, the well-known "palms," are of frequent occurrence), or on the osiers and the creeping willow, *Salix repens*. *Orchis Morio*, *Scirpus sylvaticus*, *Ranunculus hederaceus*, and the yellow water lily were also found.

Notes on the Club Excursion on June 22nd to Woldingham and Oxted. (By Mr. H. T. MENNELL, F.L.S.)—This excursion was well attended, being attractive to both geologists and botanists: the former, under the leadership of Mr. Roberts, and the botanists under that of Mr. Menzell. Many plants of interest were gathered, including all the usual representatives of the chalk flora. Orchises were, of course, abundant, including the bee (*Ophrys apifera*), the butterfly (*Habenaria chloroleuca*), the large helleborine (*Cephalanthera grandiflora*), *Orchis pyramidalis*, *O. maculata*, and *Listera ovata*, *Atropa Belladonna* (the deadly nightshade), *Chlora perfoliata*, *Erythraea Centaurium*, *Verbascum nigrum*, *Cynoglossum officinale*, *Scrophularia aquatica*, *Echium vulgare*, may also be mentioned; but the most interesting plants gathered were *Myosotis sylvatica* and the rare *Euphorbia Esula*, which has been previously recorded from the same locality.

Excursion on July 6th to Keston Common and Holwood Park, conducted by Dr. H. Franklin Parsons, who reports:—"By the kind permission of the Earl of Derby, the party—unfortunately not a very large one—had an opportunity of seeing parts of this beautiful and historic park not ordinarily open to the public. The park is undulating and well wooded, and the fine velvety turf contains a varied assortment of wild plants, among them being noticed some species, such as the rock rose and the bee orchis, more usually met with upon chalk downs than on gravelly soils, such as that in Holwood Park. Several notable trees were seen, as Wilberforce's Oak, an ancient oak, under which, as the philanthropist records in a passage of his journal, which is engraved on a neighbouring stone seat, he formed the intention to move for the abolition of the slave trade; another fine oak, called Pitt's Oak; and a large beech tree, called the Twelve Apostles, with twelve stems joined at the base. But the most remarkable of all is a tree formed of a yew and an oak, of which the trunks have completely coalesced, each, however, sending out its own branches, those of the

yew spreading wide, and those of the oak rising high above them. In a deep wooded valley a chain of ponds has been formed, which are full of interesting aquatic plants, while ferns and a variety of exotic shrubs grow luxuriantly around their borders."

Fungus Foray on Sept. 14th to Croham Hurst, conducted by Dr. H. Franklin Parsons, who reports:—"At the fungus hunt at Croham Hurst on Sept. 14th some twenty-six species of fungi were observed, chiefly of common kinds. Specimens were more numerous than they have been in the dry seasons of several preceding years. The fungi collected were exhibited and described at the meeting of the Club on Sept. 17th."

["Later in the autumn, owing to the rain which fell in October, fungi became much more abundant until checked by the frosts of November. Mushrooms were exceptionally plentiful. A specimen of *Agaricus arvensis* more than a foot in diameter grew in the garden of Mr. E. A. Martin at West Croydon, and a gigantic specimen, 2½ ft. high, of what seems to have been the same species found at Beddington Lane is shown in an illustration by Mr. W. M. Duckworth in 'Country Life' of Nov. 9th, 1901."]

The ramble to Croham Hurst on May 16th, under the leadership of Mr. J. Edmund Clark, B.A., B.Sc., and Mr. H. T. Mennell, F.L.S., and favoured by a beautiful evening, was largely attended and much enjoyed by all present. A very large number of plants (about one hundred and fifty in all) were observed and recorded, though none of special interest or rarity. The whortleberry is, as is known, abundant, and the lily of the valley also, but the latter very rarely flowers on Croham Hurst.

On June 20th an evening ramble on Hayes Common was made under the leadership of Dr. Parsons, the part explored being the northern border of the common nearest the village. Some seventy species of plants were recorded. On a piece of sandy ground covered with short turf near the approach from the railway station were found a number of dwarf annual plants, among them being *Trifolium striatum* and *Festuca ambigua*. In a shallow pond, among the aquatics, was *Peplis Portula*. In a large disused gravel-pit *Sedum acre* and *Geranium pyrenaicum* were found, and rubbish-heaps in other pits yielded a number of casuals and weeds of cultivation, as *Papaver somniferum*, *Dipsacus sylvestris*, *Hesperis matronalis*, and *Coronopus Ruellii*.

On July 18th an evening ramble on Riddlesdown was made under the leadership of Mr. C. E. Salmon, who reports that the most interesting plants noticed were *Torilis nodosa*, *Marrubium vulgare*, *Festuca rigida*, and *Hordeum secalinum*.

Among plants of special interest recorded during 1901 are:—

<i>Lactuca Scariola</i>	found at Greenhithe.
<i>Dipsacus pilosus</i>	" " Bedlestead, near Chelsham.
<i>Euphorbia Lathyris</i>	" " Copse at Keston.
<i>Mentha Pulegium</i>	" " Earlswood Common.
<i>Senecio viscosus</i>	" " Gravel-pit near Hayes Station.

Owing to the severe frosts in November, which were very destructive to garden flowers, especially to the summer blooming kinds, the

number of species and varieties of flowers shown at the Club's Soirée on November 27th was less than in any previous year, being only thirty-two, whereas in previous years the number has ranged from forty-four in 1881 (the first year in which a collection was shown), to one hundred and seventy in the mild autumn of 1897.

The contrast between the late autumn of 1901 and 1900 in its climatic conditions has been most marked. On October 20th Mr. Mennell records ninety species and varieties of plants and flowers in his garden, but a very large number of these were cut off by the sharp night frost of October 24th, and the still more severe one of Nov. 1st completed the destruction, so that the gardens during November and December have been almost completely denuded of flowers. On Christmas Day Mr. Mennell only noted the common primrose in his garden, as compared with over twenty species in the previous year. Of wild flowers on Christmas Day only three or four species were noted: *Lamium album*, *Calluna vulgaris*, groundsel, and chickweed.

The Committee would again call the attention of the members to the collection of Surrey plants in the Club's possession. An excellent beginning was made with this collection, but it has not been much used or kept up to date during the past two or three years. If one of our members with sufficient leisure would constitute himself curator, and really look after it, large additions could be made to the collection, and several of our botanical members would contribute liberally, if they knew the collection was properly looked after. We fear, however, it may have to wait until the dream of a museum with an efficient curator is realised.—E. F. KLAASSEN, *Hon. Sec.*

GEOLOGICAL COMMITTEE.

The Committee of the Geological Section beg to report that during the year there have been held eight Committee meetings, eight sectional meetings, and three excursions. The average attendance at the Committees has been five, and at sectional meetings nine, including visitors.

The album containing photographs of interesting sections has been kept up.

Entries have been made upon the six-inch Ordnance Map of Croydon belonging to the Club of all sections which have been recorded in the book kept for that purpose.

The Committee have co-operated with the Honorary Secretary of the University Extension Lectures in obtaining subscribers to Mr. F. W. Rudler's lectures upon the scenery of the British Isles.

The following excursions have been organised by the Committee:—

June 11th.—To the pits worked in the middle beds of the London Clay at Thornton Heath brickfields. Conductor, W. Whitaker, Esq., F.R.S., &c. Although there were found numerous septaria, no fossils were discovered, but selenite crystals were fairly abundant. The cutting at Thornton Heath station, showing the junction of the London Clay with the sands of the Oldhaven beds, was also visited. The sands showed slight current-bedding with a few pebbles at the junction with the clay.

June 29th.—To Swanscombe. Conductor, N. F. Robarts, Esq., F.E.S. The Upper Terrace gravels were examined, and a considerable number of palæolithic implements secured. The party were

conducted over the pits by Mr. A. C. Hinton, who explained that the gravel shown lying upon the Chalk was that known as the high Terrace of the Thames valley, being 90 to 100 ft. above O.D. The implements found or obtained from the workmen were almost all sharp and unrolled. In the sands and gravel of an adjoining pit forming part of the same terrace, a large number of *Neritina fluviatilis* and *Corbicula fluminalis*, with other shells, were found.

October 12th.—To Thornton Heath railway cutting. Conductor, W. Whitaker, Esq., F.R.S., &c. The party, numbering about fifteen, met at 5, Bulganak Road, where Mr. Towse showed mammalian remains found in gravel in the cutting about one hundred and fifty yards north of Brigstock Road, and at a depth of about 20 ft. The remains consisted of molars, some rolled and some unrolled, of *Elephas antiquus*, *E. primigenius*, bones of *Elephas*, and a tooth of *Equus caballus*. The gravel abuts on the London Clay escarpment, and, following the line to the north, gradually rises to the surface, being in some places interstratified with, and in others covered by a wash of clay in which are tertiary pebbles.

The Committee have to report that an interesting section has been opened at Thornton Heath, and further discoveries of mammalian bones have taken place there since the visit of the Section.

The following four photographs of sections have been sent to the British Association Committee on geological photographs:—Elmstead Pit, Sandridge Park (two), by Mr. E. Pierce; Elmstead Pit, Sandridge Park (two), by Mr. J. H. Baldock.—N. F. ROBERTS, *Hon. Sec.*

PHOTOGRAPHIC COMMITTEE.

The Photographic Section have held their usual weekly meetings during the past year. There has been no sign of any falling off in the number of members attending the meetings.

Among the principal lectures, &c., given before the members of the section during the past year have been:—

Two very interesting lectures by Mr. Baldock explaining the use of the many different kinds of printing papers recently introduced. These two papers have been fully reported in the photographic press.

A lecture by Mr. Baldock on the making of lantern-slides.

A lecture on the work of the late Mr. Rejlander, the pioneer of artistic photography.

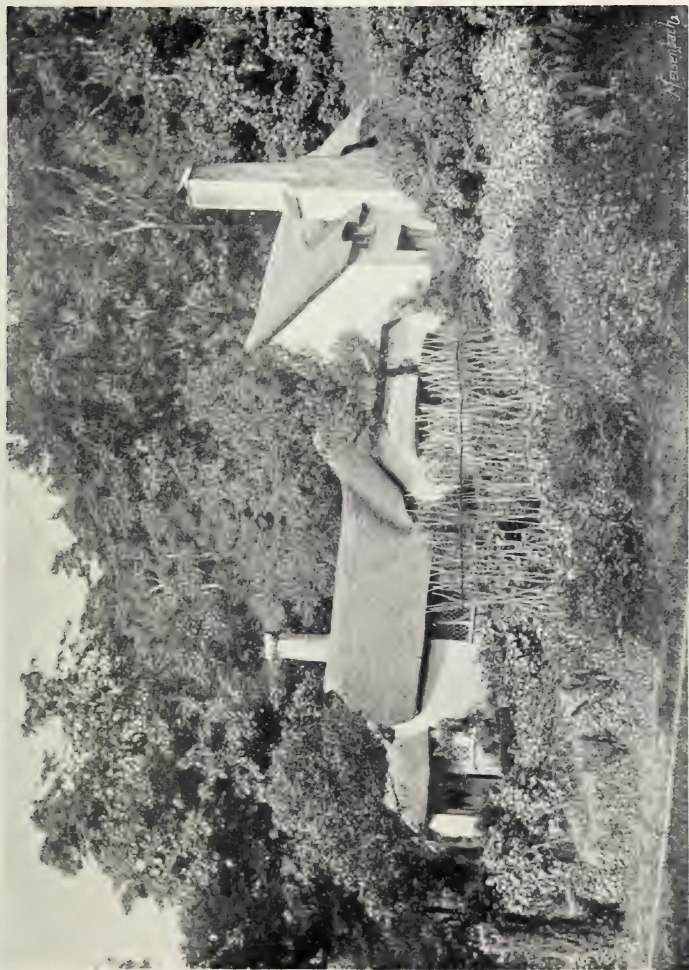
A lecture on hand camera work, and one on lantern-slide making, by Mr. A. Horsley Hinton.

A lecture on English Gothic architecture by Mr. Mann.

Sets of lantern-slides illustrating the scenery of Canada and of Pennsylvania have been shown.

An exhibition of prints and lantern-slides by members of the Club was held in February, and a very good collection of pictures by members was shown at the Soirée in November.

A competition was held, at the suggestion of the President, for the selection of three pictures to be reproduced in the Society's 'Transactions.' The prizes were awarded to Miss A. E. Whitley for a "Cottage at Selworthy, Somerset"; to Dr. Hobson for "The Mole, from Betchworth Bridge"; and to our President for an "Interior of Wells Cathedral." These have been reproduced in "half tone," and will be found in the 'Transactions.'



A COTTAGE, SELWORTHY, SOMERSET

MISS A. E. WHITLEY





THE MOLE FROM BETCHWORTH BRIDGE

DR. HOBSON





WELLS CATHEDRAL

JAMES EPPS, JUNR.



Another competition has been held amongst junior members for two prizes given by Dr. Hobson.

A completely fitted enlarging apparatus, with an $8\frac{1}{2}$ inch condenser, has been fitted up in the dark room, and can now be used by any member who wishes to make enlargements from his negatives. The want of an enlarging apparatus of this kind has been much felt by the Section in the past, and I am very glad to be able to report that by the kindness of Mr. Epps, who has presented the condenser to the Section, the want no longer exists. The thanks of the Section are due to Mr. Epps for his kindness in thus providing it with a valuable condenser, and for his offer to defray the expense of reproduction of the three best pictures of the year in the 'Transactions' of the Society.

Thanks are also due to Mr. Baldock for his lectures and for his admirable management of the lantern during the past year.—E. PIERCE, *Hon. Sec.*

MUSEUM COMMITTEE.

The Museum Committee beg to report to the Council that they have met twice during the year.

As instructed by the Council, the Committee have been in communication with the Croydon County Council respecting the formation of a Municipal Museum at Grange Wood, but the Roads Committee, not having adopted the proposal of the Council to fit up a room and supply a caretaker, conditionally upon the Club undertaking the scientific management of a local collection, and bearing the cost of arrangement and any necessary salary to a paid assistant curator for, at all events, the first year, and to further assist the County Council if it commenced the nucleus of a general collection, the proposal has so far fallen through.

The Committee have to report that the number of specimens in the Loan Museum at the Town Hall has grown steadily during the year, about fifty additional specimens having been temporarily lent or given to the Club. The Committee have principally to thank the members of the Geological Section for furnishing contributions, and would particularly point out the need of increased loans of archæological and zoological objects.

The constant opening and shutting of the drawers of the case is causing considerable wear, and it may be necessary to make the drawers run on metal slides if the wear continues.

The objects exhibited still attract much attention from visitors to the Library, and the Museum therefore seems to be fulfilling its purpose.

Arrangements have been made to specially display objects which would from time to time be of particular interest to geological students attending the University Extension lectures.

The Committee have to offer their thanks to the following members of the Club:—Messrs. F. Churchill, J. E. Clark, F.G.S., George Clinch, F.G.S., H. C. Collier, E. A. Martin, F.G.S., H. F. Parsons, M.D., F.G.S., N. F. Roberts, F.G.S., W. Whitaker, B.A., F.R.S., F.G.S., &c.; and to Miss Johnston, Messrs. J. P. Johnson, Garraway Rice, F.S.A., and H. Perry (who are not members), for loans and donations; also to those members and others whose loans have been previously acknowledged, who have allowed their specimens to remain on view during the current year.

ZOOLOGICAL COMMITTEE.

During the past year a start has been made towards the resuscitation of this Section, which had unfortunately languished for so long. The honorary secretaryship has been temporarily filled by Mr. E. A. Martin, F.G.S., and it is hoped that during the coming year members of the Society will render all the assistance to this branch that is in their power. It has been arranged that future meetings will be held on the fourth Tuesday in each month.

Members Elected, 1901.

February 19th.—Miss Alice Livingston, Miss Emma Livingston, Mr. J. H. Gulianette, Mr. Robert Gilling, Mr. L. N. G. Filon, M.A. Juniors—Miss Dorothy Walker, Miss Norah Thompson.

March 19th.—Mrs. Linton Neligan, Dr. Joseph Neligan, Mr. O. G. C. Drury, Mr. G. Phare. Juniors—Miss B. M. Epps, Master James Epps, Master Francis James Linton.

April 16th.—Master Carlton Topley.

May 21st.—None.

September 17th.—Major-General Bedford, R.E., Mr. W. J. Day, Mr. Alfred Thompson.

October 15th.—Mr. Edwin Freshfield, LL.D., Mr. Frank Churchill, Mr. J. Cyril Crowley.

November 19th.—Miss Edith Waterall.

December 17th.—Dr. Edward H. Willock.

January 21st, 1902.—Mr. Reginald A. Crowley.

Donations to the Library, 1901.

From Individuals.—Guide to the Geology of London; Nature Notes—Mr. W. Whitaker. Miller's Elements of Chemistry—Mr. Baldock. Notes on *Limonium lychnidifolium*—Mr. C. E. Salmon. The Naturalist's Directory—Mr. E. A. Martin. Upper Chalk Radiolaria from Coulsdon—Mr. Murton Holmes. Knowledge—Mr. Roods.

From Societies.—The Rochester Naturalist; Journal of the Royal Microscopical Society; Transactions of the Eastbourne Natural History Society; History of the Berwickshire Natural History Club, and the Session Book of Bunkle and Preston; Report of the British Association (Bradford) Meeting, 1900; Journal of the Manchester Geographical Society; Proceedings of the Academy of Natural Sciences, Philadelphia; Journal of the Belgian Microscopical Society; Proceedings of the Reading Literary and Scientific Society; Meteorological Report of the Fernley Observatory, Southport; Journal of the Northamptonshire Natural History Society; Proceedings of the Société Royale Malacologique of Belgium; Transactions of the Norfolk and Norwich Naturalists' Society; Journal of the Geological Institution of the University of Upsala; The Twelfth Report of the Missouri Botanical Gardens; Journal of the Quekett Microscopical Club; Proceedings of the South London Entomological and Natural History Society; Bulletin of the Lloyd Library of Cincinnati; The South Eastern Naturalist.

From Publishers.—The British Journal of Photography; The Amateur Photographer; Photography; The Photographic News; The Magic Lantern Journal.

SPECIAL FUND ACCOUNT.

£186 9s. 0d. CONSOLS.

1901.				1901.				£ s. d.	
January 1.	...	...	...	December 31.	County Fire Office for Insurance on Museum	...	...	0	2 6
Balance	...	...	...	Case	...	...	...	1	8 7
Dividend,	January	...	...	Cost of Trays and extra Locks	...	...	...	0	12 0
"	April	...	...	Repairs to Cyclostyle	...	...	...	2	0 0
"	July	...	...	Cost of Photographic Enlarging Lantern	...	...	...	0	12 0
"	September	...	...	Poles for Lantern Sheet	...	...	...	26	5 5
				Balance	...	...	...	£31	0 6

BALANCE SHEET.

1902.				1902.				£ s. d.	
January 1.	...	...	...	January 1.	Balance at Bank	...	...	31	8 5
Balance of General Account	...	...	...			
Special Account	...	...	...			
"						
Subscriptions for 1902, received in advance	...	...	...			
								£31	8 5

We, the undersigned, having examined the above Accounts and the Vouchers relating thereto, hereby certify that they are correct according to the Vouchers and the Banker's Pass Book.

BRYAN CORCORAN.
W. A. WEIGHTMAN.

7th January, 1902.

RULES

OF THE

Croydon Natural History and Scientific Society.

TITLE AND OBJECT.

1.—The Croydon Microscopical and Natural History Club shall in future be called “THE CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY,” and shall have for its objects the study of Science, and especially of the Natural History of the neighbourhood of Croydon and of the County of Surrey, and the practice of Microscopy and Photography.

MANAGEMENT AND OFFICERS.

2.—The Officers of the Society shall consist of a President, Vice-Presidents, Honorary Treasurer, Secretary, Librarian, Lanternist, and Museum Curator. The business of the Society shall be conducted by a Council consisting of the Officers of the Society, who shall be *ex officio* members thereof, and of seven ordinary members.

3.—At all meetings of the Council four members shall form a quorum.

ELECTION OF OFFICERS.

4.—The Officers of the Society and other Members of the Council shall be elected at the Annual Meeting. The President shall not hold office more than two years in succession. The Vice-Presidents shall not exceed three in number. Two of the retiring ordinary members shall not be eligible for re-election. Such members shall be (a) the one who has attended the smallest number of Council Meetings during the past year; (b) the one who has served upon the Council the longest. If two or more ordinary members have attended an equal number of Council Meetings, that member shall be eligible who has served the longest. If two or more members have served an equal length of time, that member shall be ineligible who has attended the Council least during the past year. In the event of any vacancy occurring in the Council during the year, the election to fill the vacancy shall take place at the next ordinary meeting but one, the election being conducted in the same manner as at the annual meeting.

MEMBERSHIP.

5.—Both Ladies and Gentlemen shall be eligible for membership.

JUNIOR MEMBERS.

6.—Persons under 18 years of age may be elected, in the usual manner, Junior Members of the Society, and shall be entitled to all the privileges of Members, except that they shall not be entitled to vote on any question. They will become Full Members, without further election, on the 1st January of the year after that in which they have become 18 years of age, subject to the payment of the usual subscription.

CANDIDATES.

7.—Every candidate for membership shall be proposed by two or more members, who shall sign a certificate of recommendation. One, at least, of the proposers shall have a personal knowledge of the candidate. The certificate shall be read from the chair at an ordinary meeting, and the candidate recommended shall be balloted for at the following ordinary meeting. One black ball in five to exclude. If two or more candidates are balloted for together, and any black ball be found in the box, the ballot shall be taken for each candidate separately.

SUBSCRIPTIONS. — LIFE MEMBERS.

8.—The Annual Subscription for members shall be 10s., and for Junior members 2s. 6d. Such subscription shall be payable in advance on the 1st January (or on election, if previous to December), and no person, whose subscription is unpaid, shall be entitled to the privileges of the Society. Any member desirous of compounding for his or her future subscription may do so at any time by payment of ten pounds; all such sums shall be duly invested in such manner as the Council shall think fit.

HON. MEMBERS.

9.—Distinguished persons may be elected Honorary Members of the Society, but such Honorary Members shall have no vote in its affairs.

RESIGNATION.

10.—No member shall be considered to have withdrawn from the Society until that member shall have paid up all arrears and have given a written notice to the Secretary of his or her intention to resign; and any member more than one year in arrear may be removed from the list of members by the Council.

EXPULSION.

11.—If it shall be thought desirable to expel any member from the Society, and a resolution of the Council be passed to that effect, the same shall be read at the next ordinary meeting; and at the following

meeting a ballot shall take place with respect to the proposition, when, if two-thirds of the members present shall confirm such resolution, the same shall thereupon take effect.

VISITORS.

12.—Any member may introduce two Visitors at an ordinary meeting. Such Visitors shall write their names, and that of the member by whom they are introduced, in a book kept for that purpose.

ORDINARY MEETINGS.

13.—The ordinary meetings of the Society shall be held on the third Tuesday in every month, except in the months of June, July, and August; the chair shall be taken at Eight p.m., or at such other time as the Council may appoint. The room shall be open for the reception and inspection of objects of interest at 7 p.m.

14.—The ordinary course of proceeding shall be as follows:—

1.—The Minutes of the previous meeting shall be read and submitted for confirmation.

2.—Donations to the Library and Museum shall be announced.

3.—The certificates of Candidates for membership shall be read, the ballot for election of Members shall take place, and any other business shall be transacted.

4.—The exhibits shall be explained and scientific communications shall be read and discussed.

15.—At any meeting, in the absence of the President, or Vice-Presidents, the members present shall elect a Chairman for that meeting.

PAPERS.

16.—No paper shall be read which has not received the sanction of the Council; and whenever it is possible, early notice of the subjects of the papers to be read shall be given by the Secretary to the members. The papers shall be deposited with the Hon. Secretary for publication at the discretion of the Council.

ACCOUNTS.

17.—The Accounts of the Society shall be audited by two members appointed at the ordinary meeting in December. No member of the Council shall be eligible as an auditor.

ANNUAL MEETING.

18.—At the ordinary meeting in December, notice of the Annual Meeting in January shall be given from the chair.

PROCEEDINGS AT ANNUAL MEETING.

19.—The Annual Meeting of the Society shall be held after the ordinary meeting, in January, when the election of the Council and Committees for the year ensuing shall take place, and the Balance Sheet for the past year, duly signed by the Auditors, shall be read by the Treasurer, after which the President shall deliver his address.

APPOINTMENT OF OFFICERS.

20.—The Officers of the Society and other members of the Council shall be nominated in writing, and such nominations shall be sent to the Hon. Secretary at least seven clear days before the Annual Meeting. In the event of the number of nominations exceeding the number of officers or members of the Council respectively to be elected, a printed list of the nominations shall be circulated at the Annual Meeting, and the members present shall vote by striking out the names of those for whom they do not desire to vote, and placing the lists in an urn upon the table. Scrutineers shall be appointed at the meeting, and the votes shall be counted during the course of the evening.

SECTIONAL COMMITTEES.

21.—At the Annual Meeting Sectional Committees shall be appointed for Anthropology, Archæology, Botany, Geology, Meteorology, Microscopy, Photography, and Zoology, or such of these or other subjects as may at any time seem desirable; also a Museum Committee, which shall have the general management of the Society's Museum.

22.—Each Committee shall appoint its own Chairman and Secretary.

SECTIONAL COMMITTEE MEETINGS.

23.—Each Sectional Committee shall present a report to the Council by the 31st December of each year, informing the Council what work has been done by the Section during the year. The meetings of the Committees shall be held on such dates and at such times as the Committees shall appoint.

EXTRAORDINARY MEETING.

24.—An Extraordinary Meeting of the Society may be called at any time by the Council, or at the written request of ten or more members. Such request shall be delivered to the Council, who shall summon such meeting to be held within 28 days of the receipt of such notice. Seven days' notice of any extraordinary meeting, with particulars of the business to be transacted, shall be given to each member by circular.

ALTERATION IN RULES.

25.—No permanent alteration of these rules shall be made except at one of the ordinary meetings of the Society, and notice of any proposed permanent alteration or addition must be given in writing

at or before the preceding ordinary meeting, and read aloud, and included in the circular convening the meeting, at which it shall be brought forward for consideration.

LIBRARY.

1.—Application for the loan of books or lantern or microscopical slides in the custody of the Hon. Librarian shall be made to him, the borrower to sign a receipt, which will be cancelled on the return of the book or slides borrowed.

2.—No member may borrow more than one book or set of slides at one time.

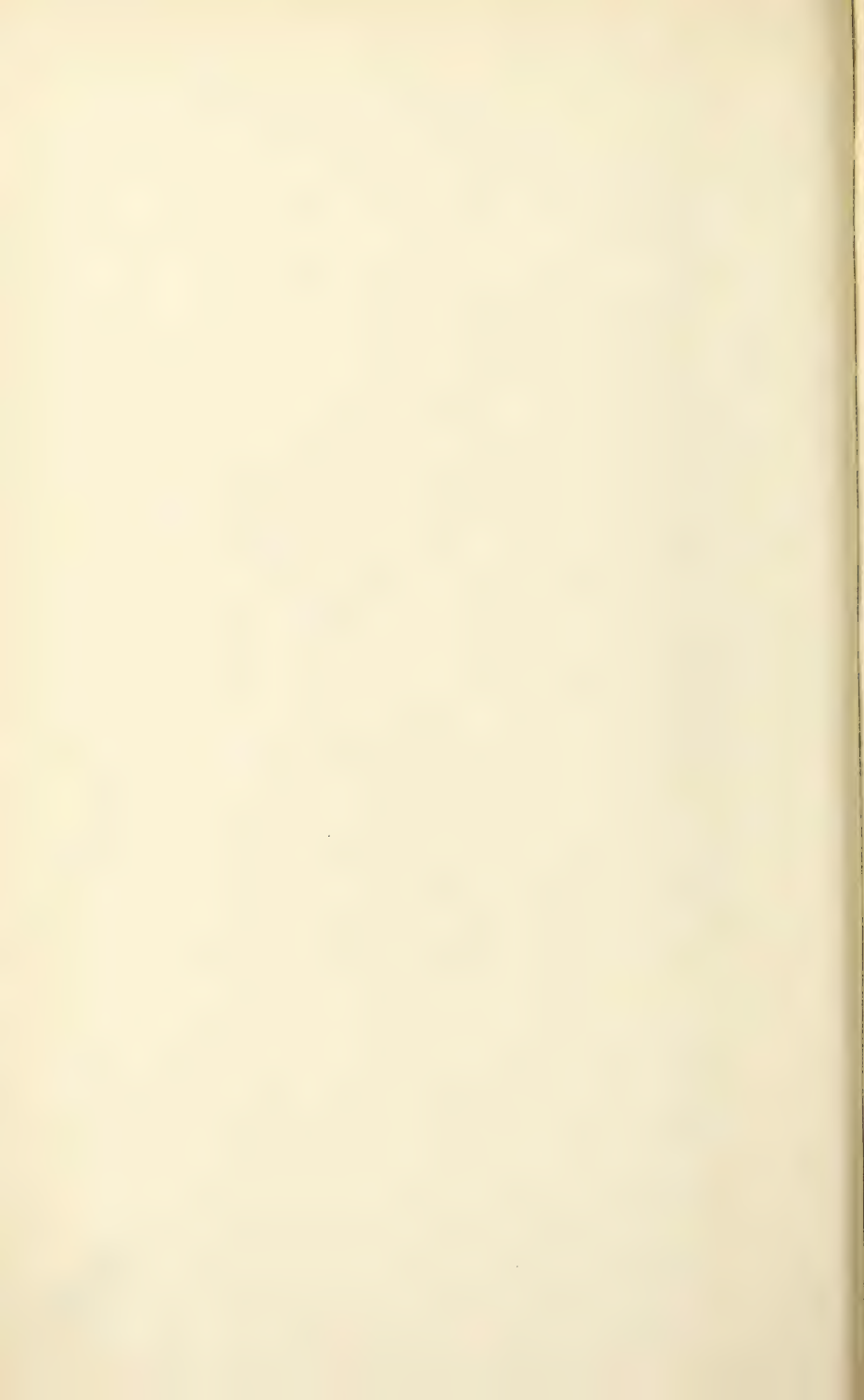
3.—No book or set of slides may be retained longer than one month, but the same may be again borrowed provided there be no other applicant for it. Any member not complying with this rule will incur a fine of 1s. for each month after the first that the object is retained.

4.—The borrower shall make good all damage which any book, &c., may receive while under his or her charge; such damage to be assessed by the Council.

5.—Books marked "R" (reference), and unbound pamphlets are not to be removed from the reading room.

6.—No member shall be entitled to the privileges of the Library who has not paid such fines as he or she may have incurred.

7.—The Society's books in the charge of the Librarian at the Town Hall may be borrowed upon the same terms as those in the charge of the Hon. Librarian. The applicant shall, if so required by the Librarian, produce the receipt for the current year's subscription as evidence of membership.



TRANSACTIONS
OF
THE CROYDON NATURAL HISTORY AND
SCIENTIFIC SOCIETY.

1901—1902.

1.—REPORT OF THE METEOROLOGICAL COMMITTEE, 1901.

Prepared by the Hon. Sec., FRANCIS CAMPBELL-BAYARD,
F.R.Met.Soc.

THE same arrangements, under which the daily rainfall of the district around Croydon has been observed and tabulated, have been continued throughout the year 1901. On entering into the first year of the second decade, according to the rules of the Royal Meteorological Society, of the Society's operations, it is perhaps unnecessary to emphasize the great value of continuing the same plan as laid down originally, for in all statistical observations the value of continuity is considered of first-rate importance.

The number of stations in the printed list is 83, and there are two additional stations—*viz.* Redhill (Linkfield Road), and Benhilton, the records of which are practically complete for the whole year, and which will be found at the end of this Report. These 85 stations are under the superintendence of 66 observers. The only change during the year in the observers is at Beckenham, which change was mentioned in the March sheet. The Committee desire to congratulate the Society on the absence of any further change.

Appendix I. to this Report contains a list of the observers, with particulars relating to the stations and gauges, and also the monthly tables of daily rainfall, of which a sufficient number have from month to month been pulled for the use of the Society.

These printed tables contain the records of all observers, with the exceptions already mentioned, reporting to the Committee.

Appendix II. contains a record of all falls of rain of 1·00 in. and upwards, extracted from the monthly tables in Appendix I. It will be noticed that there is only one fall exceeding 2·00 in.—*viz.* 2·07 on October 1st at Harp's Oak Cottage—and that there are no less than eleven days on which there were falls of 1·00 in. and upwards, as against only six days in the previous years.

The year's rainfall must be described as a short one. In order, if possible, to find out the deficiency, the year's rainfall has been compared with the 10 years' averages given in last year's report. In that report the averages for 48 stations were given, and of these stations 45 may be considered as continuous. Of course, it must be recollected that a 10 years' average is not an absolute one, in fact, some of the greatest rainfall authorities

TABLE A.

RAINFALL DEFICITS IN 1901 AS COMPARED WITH THE AVERAGES
1891-1900.

STATIONS.	Height ab. sea- level.	DEFICIT.	STATIONS.	Height ab. sea- level.	DEFICIT.
	FT.	IN.		FT.	IN.
Sevenoaks	380	7·23	Croydon (Duppas H.)..	158	2·76
Richmond	109	5·80	Addington (Park Farm)	268	2·74
Raynes Park	47	5·77	Dorking (Denbies)....	610	2·72
D'Abernon Chase	280	5·38	Nunhead	176	2·72
Wimbledon Hill*	162	5·30	Orpington	220	2·53
Kingston	25	5·24	Banstead	488	2·34
Surbiton	25	5·10	Caterham	610	2·31
Knockholt	785	4·79	Croydon (Brim. Bn.)..	130	2·25
New Maldon	45	4·72	„ (Waddon N. Rd.)	146	2·09
Wimbledon (Sew. Wks.)	58	4·56	Addington (Pump Sta.)	331	2·03
Oxshott	212	4·35	Wallington	140	2·01
Abinger (The Hall) ..	320	4·26	Bickley	295	1·91
Forest Hill (Newf. Ho.)	220	3·50	Deptford	20	1·91
„ (S. & V. W. C.)	344	3·39	Greenwich	155	1·90
W. Norwood	220	3·34	Sidecup	160	1·82
Farningham Hill	300	3·20	Leatherhead	250	1·80
Reigate Hill	440	3·18	Croydon (Whitgift) ..	191	1·73
Redhill	300	3·14	Nutfield	468	1·64
Wilmington	25	3·09	Brixton	77	1·37
Esher	40	3·08	Beckenham*	155	1·32
Beddington	120	2·91	Addington Hills	473	1·07
South Norwood	125	2·87	Battersea	21	0·93
Sutton*	110	2·78			

* The stations marked * are different from those from which the averages are calculated, but are in the near neighbourhood.

consider that an average of 100 years is not long enough ; but still, with all its disadvantages, a 10 years' average affords a certain guide with which to compare an individual year, more especially when the stations are practically the same. On these lines Table A has been framed. The stations have been arranged in order of deficiency irrespective of height above sea-level, and, where two or more stations have the same amount of deficiency, in alphabetical order. The table is well worth very careful study, but it appears to your Committee that, in looking over it, careful reference should be made to Appendix II., " Falls of 1 in. and upwards." The differences in the deficiency of rainfall are very large. In a district of about four hundred square miles we have between the greatest and least no less than 6·30 inches. Why there should be this great difference is inexplicable with our present knowledge, seeing that both stations are compared with their own 10 years' averages. As showing the differences between long and short averages, your Committee desire to mention that, with respect to Greenwich, if the year 1901 is compared with the 85 years' average (1816-1900), the deficiency is 4·46 in., but if with the 10 years' average (1891-1900), the deficiency is only 1·90 in. Again, take Surbiton : if the year 1901 is compared with the 45 years' average (1856-1900), the deficiency is 6·58 in., but if with the 10 years' average (1891-1900) it is 5·10 in.

With respect to the average rainfall of the different months, the monthly notes give all the particulars, but the Committee wish particularly to refer to the months of November and December, in which months we have the smallest and greatest rainfall in the respective months for many years past. It is a very rare occurrence to have two months so exactly opposite to one another following one another in succession.

The greatest daily rainfall was at Harp's Oak Cottage, on October 1st, and this was the only one over 2·00 inches. The number of days in which 1 inch or more fell in the district was eleven, a number which is nearly double of the number of last year.

In conclusion, the Committee desire to tender their thanks to those who have helped the Society by their donations to this great work, which is yearly becoming of greater value to the Society, and also to the district served by it.

HURSTLEIGH, LINKFIELD ROAD, REDHILL, SURREY.

Observer—MRS. STEPHENSON. Gauge 5 in. in diameter.

Height of gauge above ground, 1 ft.

Height of station above sea-level, 350 ft.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
1·62	1·63	2·24	2·26	1·25	1·78	1·98	2·17	1·67	3·62	0·82	4·79	25·83

ELMSLEIGH, LONDON ROAD, BENHILTON, SURREY.

Observer—J. C. M. STANTON. Gauge 5 in. in diameter.

Height of gauge above ground, 15 in.

Height of station above sea-level, 125 ft.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
0·86	0·91	2·62	1·92	0·70	1·38	3·03	1·88	1·51	2·75	0·51	3·75	21·82

APPENDIX I.

CROYDON MICROSCOPICAL AND NATURAL HISTORY CLUB

(Meteorological Committee.)

No.	STATIONS.	OBSERVERS.	Size of Gauge.	Height above Ground.		Height of Station above Sea-level.
			IN.	FT.	IN.	FT.
	Abinger (The Hall)	The Lord Farrer	8	2	0	320
	Abinger (The Rectory).....	Miss Brodie-Hall....	5	1	0	381
	Dorking (Denbies).....	J. Beesley	5	0	6	610
	Redhill (Oxford Road)	W. H. Tyndall.....	8	1	0	300
5	Nutfield (The Priory)	J. Moffatt	8	1	2	468
	Nutfield (The Priory) 2nd gauge	J. Moffatt	8	1	2	331
	Buckland (Hartswood)	R. W. Clutton	5	1	0½	174
	Reigate Hill (Nutwood Lodge)..	H. E. Gurney	5	1	0	440
	Upper Gatton (The Park).....	F. Druce	5	1	0	600
10	Merstham (Rockshaw).....	W. Gardiner.....	5	1	0	475
	Harp's Oak Cottage	R. C. Grant	5	1	0	454
	Chipstead (Shabden Park)	J. Crerar	5	1	0	550
	Chaldon (The Rectory)	Rev. G. E. Belcher ..	5	1	0	542
	Caterham (Metropolitan Asylum)	G. S. Elliott	5	1	0	610
15	Westerham (Hill Estate).....	W. Morris	5	1	0	539
	Westerham (The Town)	W. Morris	5	1	0	380
	Knockholt Beeches (Field Gauge)	W. Morris	5	1	0	785
	Knockholt Beeches (Tower Gauge)	W. Morris	5	24	6	812
	Chevening (The Park).....	C. Sutton	5	1	0	360
20	Sevenoaks (St. Johns Hill).....	W. W. Wagstaffe	5	1	10	380
	Chelsham (Fairchildes)	A. S. Daniell	8	1	0	600
	Warlingham (Egremont).....	H. Rogers	5	1	0	614
	Kenley (Hazelea)	Mrs. Carr-Dyer	5	1	0	282
	Sanderstead (The Red House) ..	Capt. Carpenter, R.N.	5	1	0	320
25	Burgh Heath (The Reservoir)....	J. D. Grant	5	1	0	580
	Leatherhead (Downside)	A. Tate	5	1	0	250
	D'Abernon Chase	Sir W. Vincent, Bart.	5	1	0	280
	Oxshott (Beverstone)	W. H. Dines.....	5	1	0	212
	Banstead (The Larches)	Rev. C. J. Taylor....	8	1	0	488
30	Sutton (Sutton Water Co.)	J. D. Grant	5	1	0	110
	Carshalton (Sewage Works)	W. W. Gale	5	1	0	118
	Wallington (Maldon Road).....	F. Campbell-Bayard ..	5	4	1	140
	Beddington (Riverside)	S. Rostrom	5	1	0	120
	Croydon (Brimstone Barn)	Croydon Corporation	5	1	0	130
35	Croydon (Waddon New Road)....	Croydon Corporation	5	1	0	146
	Croydon (Duppas House)	Baldwin Latham	8	1	0	158
	Croydon (Whitgift)	A. E. Watson	5	1	0	191

No.	STATIONS.	OBSERVERS.	Size of	Height	Height of
			Gauge.	above	
			IN.	FT.	IN.
				Ground.	FT.
					Stam.ab.
					Sea-level.
	Croydon (Woburn Road)	M. L. Craven	5	1 1	178
	Croydon (Windmill Road)	A. Malden	5	1 6	174
40	Croydon (Park Hill Rise)	H. F. Parsons, M.D.	5	1 0	250
	Croydon (Ashburton Road)	J. E. Clark	5	1 0	188
	Addington Hills (The Reservoir) ..	Croydon Corporation	8	0 9	473
	Addington (Park Farm)	W. Whalley	5	1 0	268
	Addington (Pumping Station)	Croydon Corporation	8	1 0	331
45	West Wickham (Wickham Court) ..	Sir H. F. Lennard, Bt.	5	1 2	300
	Farnborough (Feniton)	Miss Percy	5	1 0	376
	Orpington (Kent Water Co.)	W. Morris	5	1 0	220
	Farningham Hill (Hill House) ..	A. J. Waring	5	3 0	300
	Southfleet (Kent Water Co.)	W. Morris	5	1 0	82
50	Chislehurst (Hawkwood)	Miss Edlmann	5	1 0	300
	Bickley (The High Field)	J. Batten	5	1 2	295
	Bromley (The Palace)	Coles Child	5	1 0	187
	Bromley Common (Elmfield)	Rev. J. P. Faunthorpe ..	5	0 9	240
	Beckenham (Oakwood Avenue) ..	H. Dolling-Smith ..	5	1 0	184
55	South Norwood (Apsley Road) ..	W. H. Cullis	5	1 0	125
	Morden (Steel Haves)	Miss R. Hames	5	5 2	100
	Wimbledon (Sewage Works)	C. H. Cooper	5	1 0	58
	Wimbledon (The Downs)	Francis Fox	5	1 1	162
	Raynes Park (Pumping Station) ..	C. H. Cooper	5	1 0	47
60	New Malden (Sewage Works)	T. V. H. Davison	5	1 0	45
	Worcester Park (Manor Lodge) ..	F. D. Outram	5	1 9	120
	Esher (Sewage Works)	A. J. Henderson	5	1 0	40
	West Molesey (Chelsea W. Co.) ..	R. Hack	5	1 0	32
	Surbiton (Seething Wells)	R. Hack	10	0 6	25
65	Kingston (Sewage Works)	T. Stevens	5	1 0	25
	Richmond (The Terrace)	J. H. Brierley	8	1 6	109
	Putney Heath (The Reservoirs) ..	R. Hack	5	1 0	180
	Wandsworth Com. (Patten Road) ..	F. J. Brodie	5	1 0	100
	Clapham Park (New Park Road) ..	D. W. Horner	5	1 3	128
70	Streatham (Woodfield Avenue) ..	F. Jordan	5	1 0	120
	West Norwood (Thornlaw Road) ..	W. Marriott	5	1 0	220
	Up. Norwood (Dulwich-wood Park) ..	J. P. Caldicott	5	1 2	276
	Forest Hill (Dartmouth Road) ..	L. W. F. Behrens ..	5	1 0	220
	Forest Hill (S. & V. Water Co.) ..	J. W. Restler	5	1 0	344
75	Sidecup (Hatherley Road)	Lionel Burrell, M.D.	5	1 2	160
	Wilmington (Kent Water Co.)	W. Morris	5	1 0	25
	Dartford (West Hill House)	Lieut.-Col. C. N. Kidd ..	5	1 3	100
	Eltham (High Street)	W. Morris	5	1 0	245
	Greenwich (Royal Observatory) ..	Astronomer Royal ..	8	0 5	155
80	Deptford (Kent Water Co.)	W. Morris	5	1 0	20
	Nunhead (S. & V. Water Co.)	J. W. Restler	5	4 0	176
	Brixton (Acre Lane)	F. Gaster	8	1 0	77
	Battersea (S. & V. Water Co.) ...	J. W. Restler	5	3 0	21

Day of Mo.	Abinger (The Hall)	Abinger (Theory)	Dorking (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	Reigate Hill	Upper Gatton	Mersham	Harp's Oak Cottage	Chislehead	Chaldon	Caterham	Westersham (Hill Est.)	Westersham (Town)	Knoekholt (field gau.)	Knoekholt (lower gau.)	Chevening Park	Sevenoaks	Chelscham	Warling-ham	Kenley	Sanderstead	Burgh Heath	Leather-head
1	·09	·08	·08	·02	·03	·02	·01	·02	·01	·01	·02	·02	·02	·02	·02	·02	·02	·02	·02	·02	·02	·02	·02	·02	·02	·05
2	·00	·00	·00	·00	·00	·00	·00	·01	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
3	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
4	·04	·00	·00	·04	·05	·05	·00	·02	·04	·05	·12	·12	·12	·04	·05	·07	·07	·07	·07	·04	·04	·02	·12	·02	·00	·00
5	·04	·00	·00	·12	·12	·11	·13	·09	·11	·11	·12	·12	·12	·13	·05	·05	·07	·12	·12	·12	·04	·04	·08	·08	·00	·16
6	·29	·31	·24	·40	·29	·23	·39	·32	·30	·20	·23	·26	·20	·18	·11	·07	·05	·05	·05	·08	·08	·01	·12	·09	·01	·32
7	·00	·00	·00	·03	·02	·02	·00	·01	·00	·00	·00	·02	·00	·08	·02	·12	·12	·12	·12	·01	·01	·02	·02	·01	·00	·00
8	·00	·00	·00	·01	·01	·01	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·02	·00	·00	·00	·00	·00
9	·00	·00	·00	·01	·00	·00	·00	·01	·00	·00	·01	·01	·01	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
10	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
11	·01	·01	·00	·01	·00	·01	·00	·01	·01	·00	·01	·01	·01	·00	·00	·00	·00	·00	·00	·00	·02	·00	·00	·00	·00	·05
12	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
13	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
14	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
15	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
16	·21	·14	·14	·09	·06	·07	·08	·08	·10	·07	·08	·09	·03	·09	·08	·00	·05	·05	·05	·05	·10	·11	·04	·06	·00	·06
17	·18	·24	·11	·06	·09	·11	·11	·05	·10	·10	·12	·10	·13	·10	·03	·30	·30	·07	·25	·07	·10	·10	·29	·20	·00	·34
18	·28	·25	·37	·28	·14	·23	·20	·26	·23	·22	·19	·24	·13	·29	·30	·30	·01	·01	·01	·01	·11	·24	·07	·06	·00	·06
19	·00	·00	·00	·00	·00	·00	·00	·01	·00	·01	·02	·02	·03	·03	·00	·00	·00	·00	·00	·00	·02	·24	·00	·00	·00	·00
20	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·01	·00	·05	·03	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
21	·00	·00	·00	·00	·01	·01	·00	·00	·00	·00	·01	·00	·07	·03	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
22	·00	·00	·00	·00	·01	·01	·00	·00	·02	·00	·07	·02	·07	·02	·00	·00	·00	·00	·00	·00	·01	·00	·00	·00	·00	·00
23	·00	·00	·00	·02	·01	·01	·01	·02	·02	·01	·07	·02	·06	·08	·05	·11	·13	·02	·02	·04	·04	·08	·05	·04	·00	·06
24	·05	·08	·07	·05	·04	·04	·05	·04	·06	·04	·05	·06	·06	·06	·05	·11	·13	·07	·07	·03	·03	·05	·06	·02	·00	·04
25	·04	·04	·06	·05	·06	·06	·05	·04	·04	·04	·01	·04	·07	·05	·04	·13	·13	·01	·01	·03	·03	·05	·06	·02	·00	·04
26	·04	·05	·04	·04	·01	·01	·01	·02	·01	·01	·01	·01	·07	·02	·02	·11	·13	·01	·01	·01	·22	·08	·13	·11	·00	·10
27	·02	·01	·10	·14	·13	·13	·03	·09	·11	·05	·04	·04	·07	·05	·07	·11	·11	·17	·17	·14	·10	·10	·13	·08	·00	·16
28	·11	·00	·15	·20	·19	·20	·16	·21	·15	·20	·21	·18	·06	·21	·14	·11	·14	·14	·14	·10	·10	·10	·13	·08	·00	·16
29	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·01	·06	·21	·14	·11	·14	·14	·14	·10	·10	·10	·13	·08	·00	·16
30	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
31	·00	·00	·00	·00	·00	·00	·00	·01	·01	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00
*	1·36	1·21	1·50	1·52	1·28	1·35	1·26	1·32	1·30	1·12	1·18	1·22	1·30	1·37	·91	·91	·97	·51	1·03	·89	1·04	1·02	1·10	·70	1·39	1·47
†	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00	·00

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for January is 1·87 in.

January, 1901.

Day of Mo.	D'Abernon	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	(Croyn (Brum. Bn.)	(Croyn (Wm. N. rd.)	(Croyn (Dup. H.)	(Croyn (Whitgift)	(Croyn (Wob. rd.)	(Croyn (Wdm. rd.)	(Croyn (Park Hill)	(Croyn (Ashbn rd.)	Addington (Hills	Addington (Park Rm.)	Addington (Pump. St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
1	IN. ·03	IN. ·05	IN. ·02	IN. ·02	IN. ·02	IN. ·02	IN. ·01	IN. ·01	IN. ·01	IN. ·02	IN. ·02	IN. ·03	IN. ·04	IN. ·01	IN. ·01	IN. ·02	IN. ·03	IN. ·03	IN. ·02	IN. ·02	IN. ·03	IN. ·02	IN. ·02	IN. ·04	IN. ·02	IN. ·02
2	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
3	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
4	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
5	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
6	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
7	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
8	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
9	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
10	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
11	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
12	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
13	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
14	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
15	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
16	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
17	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
18	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
19	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
20	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
21	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
22	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
23	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
24	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
25	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
26	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
27	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
28	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
29	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
30	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
31	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
*	1·24	1·05	1·38	·87	·75	·88	·86	·71	·81	·82	·90	·85	·69	·77	·89	·92	·98	·96	·88	·76	·69	·75	·58	·53	·65	·58
†	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for January is 1·87 in.

January, 1901.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Haynes Park	New Malden	Worcester Park	Eslier	West Molesey	Surreyton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartford.)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
1	IN.	·03	·03	·02	IN.	·03	·03	·03	IN.	·02	·03	·02	·03	IN.	·03	·03	·01	·03	IN.	·03	IN.	·02	IN.	·04	IN.	·03
2	1	·03	·03	·02	·01	·03	·03	·03	·02	·02	·04	·02	·01	·03	·02	·03	·01	·03	·03	·01	·03	·02	·01	·04	·03	·03
3	2	·03	·03	·02	·01	·03	·03	·03	·02	·02	·03	·02	·01	·03	·03	·03	·01	·03	·03	·01	·03	·02	·01	·04	·03	·03
4	3	·03	·03	·02	·01	·03	·03	·03	·02	·02	·03	·02	·01	·03	·03	·03	·01	·03	·03	·01	·03	·02	·01	·04	·03	·03
5	4	·03	·03	·02	·01	·03	·03	·03	·02	·02	·04	·02	·01	·03	·03	·03	·01	·03	·03	·01	·03	·02	·01	·04	·03	·03
6	5	·15	·15	·03	·03	·03	·04	·12	·14	·05	·04	·01	·03	·03	·01	·03	·03	·03	·03	·03	·03	·06	·08	·03	·07	
7	6	·04	·08	·08	·08	·03	·10	·26	·38	·28	·20	·43	·11	·45	·08	·06	·14	·03	·09	·12	·06	·07	·10	·06	·11	
8	7	·06	·09	·09	·08	·08	·15	·26	·38	·28	·20	·43	·30	·45	·09	·07	·06	·04	·09	·04	·13	·06	·04	·02	·26	
9	8	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
10	9	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
11	10	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
12	11	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
13	12	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
14	13	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
15	14	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
16	15	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
17	16	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
18	17	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
19	18	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
20	19	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
21	20	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
22	21	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
23	22	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
24	23	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
25	24	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
26	25	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
27	26	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
28	27	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
29	28	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
30	29	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
31	30	·09	·09	·09	·08	·08	·01	·01	·01	·01	·03	·01	·03	·02	·03	·02	·06	·01	·01	·03	·01	·01	·03	·01	·03	
*	31	·69	·73	·73	1·12	·57	·98	·80	1·18	1·18	·98	1·09	·96	·92	·79	·73	·60	·72	·74	·65	·72	·72	·78	·49	·55	·62
†	+	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09	·09

* The figures in this row give the totals for the month.

† The totals from January 1st.

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
1	.02	.02	.04	.01	.02
2	.01	.	.02	.	.
3	.	.	.	.	.
4	.	.	.	.	.
5	.	.	.	.	.
6	.07	.06	.	.03	.
7	.11	.08	.03	.08	.
8	.05	.05	.03	.05	.01
9	.	.	.	.02	.
10	.	.	.	.	.
11	.	.	.	.	.
12	.	.	.	.	.
13	.	.	.	.	.
14	.	.	.	.	.
15	.	.	.02	.	.
16	.05	.03	.	.01	.01
17	.	.	.	.	.
18	.08	.07	.	.08	.07
19	.10	.08	.14	.11	.03
20	.	.	.	.	.
21	.	.	.	.	.
22	.	.	.	.	.
23	.10	.09	.	.10	.10
24	.07	.05	.07	.06	.05
25	.	.01	.	.	.
26	.07	.11	.04	.18	.07
27	.07	.11	.04	.	.
28	.03	.02	.02	.02	.01
29	.	.	.	.	.
30	.	.	.	.	.
31	.76	.67	.41	.75	.37
+

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(January, 1901.)

The month may be divided into three parts—the first ten days being very cold, with snow on the 6th, 7th, and 8th; then followed a period of mild sunny weather; and then came the last week with severe stormy weather, and a great gale on the 28th, which did some damage. Measles and whooping cough seem to have occurred in a mild form throughout the district, but the scarlet fever epidemic is dying out, and there are only a few cases of diphtheria. The rainfall was about an inch below the average, but owing generally to the damp very little work could be done in the fields. A lunar halo was seen at Upper Gatton and Beddington on the 2nd. The night of the 9th was exceedingly cold, the shade thermometer going down to 17° in many places. At Nutfield primroses were in flower on the 18th, and snowdrops on the 23rd. The mean temperature of the month was about 1° above the average, and was at Croydon (Whitgift) 38.6° at Wallington 38.2°, at Worcester Park 38°, at Redhill 37.2°, at Chipstead 37°, and at Warlingham 34.7°. There were recorded at Wallington 50.1 hours of sunlight, which is three per cent. above the January mean of the fifteen years 1886–1900.

F. CAMPBELL-BAYARD, F.R.Met.Soc., *Hon. Sec.*

Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorling (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	Reigate Hill	Upper Gatton	Mersham	Harp's Oak Cottage	Chislestead	Chaldon	Caterham	Westerham (Hill East.)	Westerham (Town)	Knockholt (field gau.)	Knockholt (tower ga.)	Chevening Park	Sevenoaks	Chelsham	Warling-ham	Kenley	Sanderstead	Burgh Heath	Leather-head
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	10	13	..	01	01	01	01	01	02	02	01	01	03	03	..	..	..	..	..	01	..	01	01	01	01	03
4	101	05	20	72	93	63	03	64	73	75	65	80	60	60	56	30	..	..	27	29	..	40	61	51	..	71
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	02	02	..	..	..	..	01	02	01	..	01	01	..	04	..	..	..	..	..	..	..	..	..	01	..	..
11	..	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	02	..	..	..	01	01	..	01	01	02	01	02	01	..	..	..	..	..	..	..	..	01	03	..	..	..
13	02	..	..	..	01	01	..	01	01	03	01	01	01	..	..	..	..	..	..	..	..	01	..	..	..	..
14	01	02	03	03	01	01	..	01	01	..	01	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	01	02	..	03	10	08	05	07	06	08	09	08	06	06	07	..	..	..	..	..	..	05	08	05	..	05
17	02	..	..	01	01	01	..	02	02	02	02	03	02	04	..	..	..	..	..	..	..	02	02	02	..	02
18	..	..	..	01	01	01	..	01	01	01	01	01	04	04	..	..	..	..	..	..	..	01	03	03	..	02
19	10	02	08	03	02	02	..	02	03	03	02	05	04	04	04	..	..	..	..	..	..	03	03	03	..	06
20	..	24	11	10	12	12	09	10	09	15	10	09	16	20	25	20	..	..	20	01	..	14	14	11	..	10
21	12	..	..	01	01	01	01	01	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	03
22	..	..	..	02	01	01	..	..	..	..	01	..	..	02	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..	..	01	01	..	..	..	..	..	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	01	..	29	25	29	30	27	31	31	30	01	39	35	26	48	..	..	36	27	..	41	43	39	..	27
26	45	41	47	03	02	04	05	04	..	..	01	03	40	46	02	..	..	05	03	03	..	43	46	45	..	25
27	..	54	70	37	32	38	36	37	42	39	43	49	40	46	33	31	..	..	37	32	..	43	46	45	..	25
28	65	54	70	37	32	38	36	37	42	39	43	49	40	46	33	31	..	..	37	32	..	43	46	45	..	25
*	251	247	259	175	184	164	191	161	174	180	171	205	171	188	153	129	136	79	145	128	180	152	185	161	156	156
†	387	368	409	327	312	299	317	293	304	292	289	327	301	325	244	220	233	130	248	217	284	254	295	231	295	303

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for February is 1.60 in.

February, 1901.

Day of Mo.	D'Abernon	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	Croydon (Brim. Bn.)	Croydon (Wm. N. rd.)	Croydon (Whitgift)	Croydon (Wob. rd.)	Croydon (Wm. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington Hills	Addington (Park Rm.)	Addington (Tump. St.)	West Wickham	Farn- borough	Oryington	Raring- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
*	1.53	1.44	2.62	1.42	1.16	1.51	1.50	1.36	1.68	1.41	1.43	1.39	1.43	1.16	1.70	1.65	1.63	1.94	1.57	1.45	1.43	1.40	1.43	1.53	1.46
†	2.77	2.49	4.00	2.29	1.91	2.39	2.36	2.07	2.49	2.23	2.33	2.24	2.12	1.93	2.62	2.63	2.59	2.82	2.33	2.14	2.18	1.68	1.96	2.18	2.04

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for February is 1.60 in.

February, 1901.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Sutton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartford rd.)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
1	..	..	..	..	..	..	..01	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..01	..	..	..	..01	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..25	1.23	..33	..48	..44	..30	..59	..41	..52	..48	..43	..49	..31	..39	..50	..70	..	..	..53	..48	..15	..46	..27	..27
4	..	..	..	..	..01	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	..	..	..	..02	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..01	..	..01	..	..	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..03	..03	..01	..	..02	..01	..02	..01	..	..	..	..	..02	..01	..01	..	..	..	..	..02	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..06	..02	..04	..05	..05	..03	..03	..02	..03	..03	..02	..05	..04	..08	..04	..05	..06	..	..	..02	..06	..06	..04	..03
16	..	..	..	..	..02	..01	..03	..	..02	..	..01	..01	..01	..01	..01	..03	..01	..01	..04	..04	..02	..02	..02	..01	..04	..04
17	..	..	..	..	..	..	..02	..	..	..01	..01	..01	..01	..01	..02	..01	..	..	..04	..03	..02	..07	..02	..05	..02	..
18	..	..	..	..	..02	..04	..02	..	..05	..05	..06	..04	..05	..05	..03	..02	..	..	..02	..03	..	..	..03	..05	..09	..06
19	..	..	..04	..	..02	..04	..04	..06	..05	..01	..05	..06	..06	..08	..06	..06	..	..	..02	..07	..	..	..03	..11	..10	..11
20	..	..	..09	..10	..05	..07	..08	..06	..08	..07	..05	..06	..06	..08	..06	..06	..05	..06	..06	..	..12	..08	..16	..11	..10	..11
21	1.13	..	..	..	..	..	..01	..	..01	..01	..02	..	..	..	..	..01	..	..02	..02	..	..	..01	..02	..01	..02	..
22	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..01	..01	..	..	..01	..02	..01	..02	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..	..01	..	..	..	..	..	..35	..40	..27	..34	..31	..21	..17	..14	..01	..01	..	..	..	..	..	..	..
25	..02	..	..	..	..	..	..18	..20	..24	..	..	..	..	..	..	..	..	..11	..16	..15	..18	..20	..23	..19	..20	..20
26	..28	..32	..26	..20	..13	..18	..01	..	..	..01	..01	..	..	..	..	..	..01	..01	..	..	..	..	..03	..01	..02	..
27	..03	..02	..	..	..13	..18	..21	..15	..28	..21	..20	..21	..23	..15	..16	..16	..17	..13	..13	..22	..20	..19	..27	..27	..23	..21
28	..35	..29	..25	..23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
* 1.40	1.38	1.87	1.72	1.87	1.76	1.05	1.13	1.81	1.32	1.16	1.32	1.11	1.16	1.14	1.65	1.67	1.93	1.19	1.06	1.07	1.08	1.74	1.32	1.00	1.97	1.02
† 2.09	2.11	2.99	1.72	2.99	1.33	1.80	2.11	1.61	2.50	2.34	2.30	2.20	2.12	2.06	1.65	1.67	1.53	1.91	1.80	1.72	1.80	1.46	2.10	1.49	1.52	1.64

* The figures in this row give the totals for the month.

† The totals from January 1st.

The figures in this row give the totals for the month.

The totals from January 1st.

February, 1901.

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.). Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES. (February, 1901.)

The month has been exceedingly cold. It is the coldest February since 1895, and in the last fifteen years there have only been three colder Februaries. The swift alternations of warmth and cold have proved most unhealthy, and catarrhal and respiratory disorders have been very prevalent. The naval guns on the 2nd inst. on the occasion of Her late Majesty's funeral were distinctly heard in several parts of the district, including Croydon, Kenley, Norwood, and Wallington. Everything is extremely backward, and at Nutfield crocuses only appeared on the 27th, and blue and white hepaticas on the 13th. The farmers have had a good season with the sheep, and the market gardeners with vegetables, but the ground, as a rule, has been too wet to work. The snow on the 4th was particularly heavy in some parts, and yielded a large amount of water, notably at Dorking, Banstead, and Morden. Slight snow fell also on many other days. Very little fog occurred during the month. A solar halo was seen at Wallington on the 28th, and a lunar one on the 1st at Upper Gattin, Beddington, and Sideup. The rainfall is about half an inch below the average. The mean temperature of the month is between three and four degrees below the average, and was at Croydon (Whitgift) 36°, Croydon (Duppas House) 35·8°, Wallington 35·6°, Worcester Park 35·3°, Redhill 34·5°, Chipstead 34·2°, and Warrington 31·1°. There were recorded at Wallington 40·7 hours of sunlight, which is seven per cent. below the February mean of the fifteen years 1886-1900.

F. CAMPBELL-BAYARD, F.R.Met.Soc., *Hon. Sec.*

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
1	IN.	IN.	IN.	IN.	IN.
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
*	1·04	·90	·60	·98	·54
†	1·80	1·57	1·01	1·73	·91

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for March is 1.54 in.

March, 1901.

Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorling (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	Reigate (Hill)	Upper Gatton	Mersham	Harp's Oak	Chislestead	Chaldon	Caterham	Westerham (Hill Est.)	Westerham (Town)	Knockholt (field gauge)	Knockholt (tower gauge)	Chewenig Park	Sevenoaks	Chelsham	Waringham	Kenley	Sanderstead	Burgess Heath	Leatherhead
1	0.3	0.4	0.2	0.4	0.3	0.4	0.4	0.3	0.5	0.3	0.3	0.3	0.4	0.5	0.2	0.1	0.1	0.1	0.6	0.7	0.7	0.1	0.3	0.3	0.1	0.1
2	0.6	0.4	0.2	0.6	0.4	0.6	0.6	0.4	0.5	0.7	0.1	0.1	0.5	0.8	0.6	0.2	0.2	0.2	1.0	0.9	0.9	0.2	0.4	0.3	0.2	0.2
3	0.4	0.7	0.4	0.1	0.4	0.4	0.2	0.1	0.5	0.4	0.4	0.2	0.8	0.4	0.4	0.4	0.4	0.4	1.4	1.3	1.3	0.7	0.4	0.3	0.3	0.3
4	1.0	1.3	1.1	1.5	1.6	1.8	1.7	1.4	2.0	3.2	2.4	1.8	2.2	2.6	3.3	1.9	1.9	2.8	2.8	2.6	2.6	0.7	0.4	0.5	0.3	0.6
5	0.3	0.4	0.5	1.1	0.4	0.5	0.3	1.0	0.7	0.6	0.8	0.9	0.3	1.1	0.8	1.3	0.5	0.5	0.5	0.4	0.4	0.7	0.4	0.5	0.3	0.3
6	2.5	1.3	3.0	1.5	1.5	1.5	2.0	1.1	1.2	1.5	1.5	1.8	1.3	1.6	1.4	1.3	0.5	2.1	2.9	2.9	1.9	1.9	0.7	0.4	0.5	0.3
7	2.5	1.5	2.0	2.3	2.2	2.2	2.1	2.9	2.5	3.7	3.4	3.3	2.4	2.3	2.3	1.9	0.5	2.1	2.9	2.1	1.9	2.6	0.7	0.4	0.5	0.3
8	1.2	1.0	1.2	2.2	2.2	2.2	1.9	2.5	1.7	2.3	2.2	1.7	2.3	2.6	3.5	2.0	0.5	1.4	1.4	1.4	1.4	2.2	0.7	0.4	0.5	0.3
9	..	..	..	..	..	..	..	..	..	..	..	0.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	0.1	..	..	..	..	0.1	..	..	..	0.1	..	..	0.2	..	..	..	..	..	..	..	..	..	..	..	..
12	..	1.0	..	..	..	..	..	..	..	..	..	..	..	0.2	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	1.9	1.3	1.5	1.6	1.6	1.4	1.2	1.3	1.3	1.2	1.1	1.5	1.8	2.3	2.1	..	..	..	..	..	..	..	..	..	..
15	1.0	..	..	1.0	..	..	1.0	0.1	..	0.2	0.1	..	..	0.2	0.1	..	..	..	..	..	..	..	..	..	..	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	0.2	0.1	..	..	0.2	0.1	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	2.5	1.6	1.5	1.6	1.7	1.7	1.2	1.8	2.1	2.4	1.8	1.8	1.7	2.3	2.6	1.8	..	..	..	..	..	..	..	..	..	..
20	1.1	1.0	1.1	1.3	1.3	1.3	1.3	1.5	1.7	1.6	1.8	2.1	2.6	2.2	2.5	1.6	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	0.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	0.1	0.3	0.5	0.1	0.2	0.2	..	0.3	0.2	0.4	0.2	0.4	0.2	0.2	0.4	..	..	..	..	..	..	..	..	..	..	..
25	0.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.2	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.2	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	1.5	4.5	1.4	1.6	1.5	1.6	1.1	1.5	1.6	1.6	2.5	3.9	2.2	1.6	1.0	..	..	..	..	..	..	..	..	..	..
30	5.9	6.7	3.0	5.9	5.0	6.1	7.5	5.7	5.9	5.8	6.1	6.3	4.5	6.5	5.8	3.7	..	..	..	..	..	..	..	..	..	..
31	0.6	0.6	0.5	0.6	0.3	0.5	0.4	0.6	0.4	0.5	0.2	0.4	..	0.8	0.5	..	..	..	..	..	..	..	..	..	..	..
*	2.35	2.28	2.30	2.32	2.17	2.35	2.31	2.33	2.36	2.06	2.60	2.69	2.94	3.15	2.95	2.33	2.88	1.91	3.34	2.69	2.90	2.93	2.96	2.92	2.97	2.45
†	6.22	5.96	6.30	5.59	5.29	5.34	5.48	5.26	5.40	5.58	5.49	5.96	5.95	6.40	5.39	4.53	5.21	3.21	5.82	4.86	5.74	5.47	5.91	5.23	5.62	5.48

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for March is 1.54 in.

March, 1901.

Day of Mo.	D'Abernon Chase	Oxshott	Banstead	Button	Carshalton	Wallington	Bedding- ton	Croydon (Brinn. Bn.)	Croydon (Wn. N. rd.)	Croydon (Dup. H.)	Croydon (Whitgift)	Croydon (Wob. rd.)	Croydon (Wdml. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington Hills	Addington (Park Km.)	Addington (Rump. St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southdeet	Chislehurst	Bickley	Bromley
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
2	1.11	2.20	0.09	1.14	0.09	1.11	1.10	1.12	0.07	0.08	0.09	0.13	0.12	0.05	0.06	0.06	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.05	0.07	0.07
3	1.15	0.08	0.22	0.20	0.18	0.21	0.20	0.22	0.22	0.22	0.24	0.22	0.22	0.21	0.21	0.21	0.22	0.19	0.21	0.19	0.23	0.18	0.13	0.20	0.19	0.05
4	0.03	0.01	0.09	0.06	0.10	0.07	0.07	0.05	0.08	0.06	0.09	0.08	0.08	0.09	0.06	0.05	0.04	0.04	0.09	0.06	0.10	0.04	0.01	0.01	0.05	0.19
5	1.11	1.13	1.18	1.16	1.14	1.17	1.17	1.16	1.15	1.16	1.16	1.15	1.12	1.15	1.17	1.17	1.16	0.20	0.20	0.15	0.16	0.14	0.10	0.14	0.14	0.16
6	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.04	0.06	0.05	0.13	0.09	0.05	0.12	0.06	0.04	0.08	0.06	0.08	0.06	0.06	0.05	0.06
7	0.15	0.16	0.21	0.20	0.23	0.27	0.27	0.26	0.26	0.23	0.27	0.21	0.20	0.15	0.23	0.21	0.20	0.21	0.25	0.16	0.20	0.16	0.13	0.16	0.18	0.19
8	7.12	2.23	2.28	1.11	1.10	1.11	0.09	1.14	1.14	1.11	1.13	1.14	1.14	1.13	1.14	1.12	0.19	0.13	0.20	0.13	0.18	0.23	0.16	0.16	0.13	0.16
9	..	0.04	1.15	1.11	1.16	1.17	1.15	1.14	1.15	1.14	1.16	1.15	1.15	1.15	0.23	0.23	0.25	0.20	0.23	0.17	0.11	0.20	0.20	0.20	0.19	0.20
10	..	..	..	0.01	..	..	..	..	..	..	..	0.01	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	1.12	1.12	1.11	1.12	1.13	1.14	1.14	1.15	1.16	1.16	1.17	1.13	1.12	1.14	1.15	0.21	0.15	0.17	0.11	0.09	0.04	0.11	0.14	0.08	0.09	0.10
16	..	..	..	..	..	..	..	..	..	..	..	0.01	..	..	..	0.01	..	..	..	0.01	0.02	0.01	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	1.14	1.15	0.21	0.20	0.23	0.26	0.28	0.30	0.34	0.30	0.30	0.29	0.35	0.28	0.33	0.29	0.30	0.30	0.47	0.33	0.39	0.35	0.21	0.37	0.45	0.43
20	1.14	1.15	0.23	0.21	0.22	0.28	0.26	0.25	0.28	0.26	0.23	0.24	0.21	0.18	0.29	0.27	0.33	0.31	0.36	0.30	0.28	0.31	0.22	0.27	0.28	0.27
21	..	..	..	..	..	..	..	..	..	..	..	0.01	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.02	..	0.03	..	..	..	..	..	..
24	..	0.01	0.02	0.03	0.03	0.02	0.01	..	0.01	0.03	0.02	..	0.01	0.01	0.01	0.02	0.07	0.03	0.04	0.03	0.04	0.07	0.05	..	0.02	0.03
25	0.05	0.05	0.02	0.02	0.02	0.02	0.02	0.10	0.02	0.03	0.08	0.03	0.03	0.01	0.04	0.05	0.07	0.03	0.04	0.03	..	0.01	0.01	0.01	0.02	0.04
26	..	..	0.01	0.02	0.02	0.03	0.03	0.01	0.01	0.01	0.01	0.02	..	..	..	0.01	..	0.01	..	..	..	..	..	..	0.02	..
27	..	0.02	..	..	..	..	..	..	..	..	0.01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	1.11	1.13	0.34	0.30	0.22	0.34	0.33	0.25	0.34	0.33	0.35	0.39	0.30	0.34	0.29	0.31	0.29	0.31	0.35	0.25	0.31	0.22	0.12	0.27	0.24	0.23
30	0.50	0.55	0.55	0.41	0.38	0.49	0.48	0.50	0.44	0.48	0.45	0.43	0.42	0.44	0.43	0.54	0.61	0.59	0.59	0.49	0.59	0.54	0.44	0.44	0.40	0.40
31	0.02	0.02	0.05	0.05	0.05	0.04	0.04	0.03	0.04	0.03	0.05	0.04	0.03	0.02	0.08	0.02	0.06	0.01	0.04	0.06	0.06	0.03	0.03	0.03	0.02	0.02
*	1.79	2.08	2.79	2.38	2.34	2.77	2.67	2.58	2.76	2.65	2.88	2.74	2.53	2.41	2.77	2.84	3.08	2.83	3.04	2.54	2.78	2.70	1.71	2.44	2.54	2.60
†	4.56	4.57	6.79	4.67	4.25	5.16	5.03	4.65	5.25	4.88	5.21	4.98	4.65	4.34	5.15	5.46	5.66	5.42	5.86	4.87	4.92	4.88	3.39	4.40	4.72	4.64

* The figures in this row give the totals for the month.

† The totals from January 1st.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Eslier	West Molesey	Sutton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartmouth)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
1	246	264	212	201	188	209	228	166	220	194	193	204	213	187	198	213	197	200	216	200	214	198	238	185	194	227
2	455	477	384	500	321	389	439	327	470	428	423	424	425	393	363	380	350	391	396	372	394	344	448	334	346	391
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* The figures in this row give the totals for the month. † The totals from January 1st.

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

Note.—As the observer at Beckenham, Mr. H. Dolling-Smith, has left Oakwood Avenue, this station has been replaced by one at 52, Wickham Road (height above sea-level, 155 ft.), under the care of Mr. Edward Scovell, whose observations are complete from January 1st.

NOTES.

(March, 1901.)

The month may be divided into four parts, *viz.*: from 1st to 8th, wet; 9th to 24th, dull and cold; 25th to 29th, fine and very cold; 30th and 31st, wet and stormy. The absolute maximum in the shade is the lowest for a great many years past. Hail fell at several places in the district on the 1st, 6th, and 20th; and on the 1st thunder was heard at Upper Gatton, Croydon, Beddington, Morden, Sidcup, and Wallington, and on the 7th at Croydon, Sidcup, and Beddington. Slight snow showers fell on many days between the 19th and 29th. The observer at Sanderstead reports that on the 1st there was a fine double rainbow at 1.35 p.m., with a secondary bow and a reversed primary bow below the primary one. At Sevenoaks the birds were checked in building their nests. The wet weather greatly hindered all field work. The almond bloomed at Beddington on the 11th, and at Sidcup and Wallington on the 12th. The month has been a healthy one, except that colds have been somewhat prevalent. A solar halo was seen at Upper Gatton on the 21st; and lunar ones on the 1st at Nunfield, Beddington on the 29th, and Upper Gatton on the 31st. The rainfall is rather over three-quarters of an inch above the average. The mean temperature of the month is nearly two and a half degrees below the average, and was at Croydon (Duppas House) 40.1°, at Croydon (Whitgift) 39.6°, at Worcester Park 39.5°, at Redhill 37.9°, at Warlingham 36.9°, and at Chipstead 36.7°. There were recorded at Wallington 63.2 hours of sunlight, which is 14 per cent. below the March mean of the 15 years 1886–1900.

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
	IN.	IN.	IN.	IN.	IN.
1	.03	.03	.03	.02	..
2	.15	.13	.12	.20	.17
3	.02	.01	.03	.04	.04
4	.20	.18	.15	.18	.13
5	.08	.05	.01	.04	.03
6	.15	.22	.15	.15	.15
7	.14	.15	.13	.16	.17
8	.11	.10	.10	.10	.06
9	..	..	..	..	..
10	..	..	..	..	..
11	..	..	..	..	..
12	..	..	..	..	..
13	..	..	..	..	..
14	..	..	..	..	..
15	.09	.09	.06	.05	.04
16	.01	..	..	..	..
17	..	..	..	..	..
18	.23	.24	.22	.33	.16
19	.23	.24	.22	.33	.16
20	.08	.08	.14	.14	.05
21	..	..	..	..	..
22	..	..	..	..	..
23	..	..	..	..	..
24	.01	.01	..	..	..
25	.01	.02	..	.03	.01
26	..	..	..	..	..
27	..	..	..	..	..
28	..	..	..	..	..
29	.13	.11	.10	.08	.03
30	.46	.39	.31	.30	.32
31	.04	.06	.03	.08	.03
•	1.99	1.80	1.58	2.07	1.39
†	3.79	3.37	2.59	3.80	2.30

Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorking (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	ReigateHill	Upper Gallon	Mersham	Harp's Oak	Chitstead	Chaldon	Caterham	Westhiam (Hill Est.)	Westhiam (Town)	Knockholt (field gau.)	Knockholt (tower ga.)	Chewen- ing Park	Sevenoaks	Chelsham	Warling- ham	Kenley	Sander- stead	Burgh Heath	Leather- head
1	..	..	..	..	..	..	..01	..	..	..	..	..	..13	..	..	..08	..	..	..	..	..	..	..	..01	..	..
2	14	16	17	11	07	10	08	10	15	11	12	14	13	13	10	08	08	11	11	09	..	14	12	10	13	13
3	61	68	65	72	65	71	74	78	81	73	79	73	63	79	67	65	65	75	59	..	..	71	58	49	58	58
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	10	05	03	..	05	10	04	02	04	04	04	02	05	05	01	..	..	..	..	12	05	05	05	02	..	..
6	07	12	11	18	12	15	14	13	12	14	14	15	12	21	21	22	08	07	22	07	13	11	08	08	13	13
7	06	05	05	..	02	02	06	03	03	02	07	03	09	05	07	08	08	10	07	08	03	03	04	02	05	05
8	..	02	05	05	03	04	06	08	03	02	07	07	07	06	10	08	08	10	07	08	06	06	06	05	05	05
9	11	10	10	20	21	22	28	25	35	31	29	38	33	20	32	30	30	29	29	11	06	06	08	05	10	10
10	43	51	40	20	21	22	26	27	35	31	30	26	15	28	15	30	30	26	26	12	32	34	28	28	40	40
11	24	28	26	27	18	21	26	27	23	20	30	26	15	28	15	30	30	26	26	12	28	27	25	22	22	22
12	01	02	..	02	01	01	03	02	03	01	01	01	08	03	04	14	14	05	05	04	03	03	02	02	02	02
13	26	31	28	22	23	23	17	23	28	30	31	24	15	25	25	16	16	21	21	16	22	22	16	11	14	14
14	01	03	02	01	01	01	01	01	01	01	01	03	08	04	03	..	..	04	04	02	03	03	04	03	03	03
15	06	06	16	15	13	12	15	18	12	21	14	14	06	12	16	13	13	22	22	19	13	13	14	14	14	14
16	07	06	04	13	16	16	04	14	12	17	15	15	03	10	25	27	27	17	17	10	13	13	15	19	08	08
17	10
18	02
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27	02	01	..	01	01	01	01	01	01	04	01	01	..	02	03	02	02	05	02
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*	219	246	232	214	192	214	209	229	241	233	247	240	209	243	242	223	241	153	256	211	182	237	232	191	236	208
†	841	842	871	773	721	748	757	755	781	791	796	836	804	883	781	676	762	474	838	697	756	784	823	714	788	756

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for April is 1.64 in.

April, 1901.

Day of Mo.	D'Abernon	Oxshott	Banslead	Sutton	Carshalton	Wallington	Bedding- ton	Croydon (Brim. Bn.)	Croydon (Wm. N. rd.)	Croydon (Dup. H.)	Croydon (Whitefri)	Croydon (Wob. rd.)	Croydon (Wdml. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington (Hills)	Addington (Park Fm.)	Addington (Pump. St.)	West Wickham	Larn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
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*	1.72	1.76	2.26	1.95	1.86	2.01	2.07	2.11	2.13	2.07	2.26	2.18	2.01	1.83	1.97	2.02	2.20	2.21	1.99	1.42	1.49	1.81	1.46	1.12	1.58	1.80
†	6.28	6.33	9.05	6.62	6.11	7.17	7.10	6.76	7.38	6.95	7.47	7.16	6.66	6.17	7.12	7.48	7.95	7.63	7.85	6.29	6.41	6.69	4.85	5.52	6.30	6.44

* The figures in this row give the totals for the month.

† The totals from January 1st

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for April is 1.64 in.

April, 1901.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Eslier	West Molesey	Surbiton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartford rd.)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Bilham
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
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*	1.69	1.74	1.78	1.99	1.85	1.83	1.89	1.68	1.73	2.06	1.89	1.84	2.12	1.91	2.07	1.99	1.65	1.60	1.73	1.67	1.78	1.74	1.88	1.42	1.67	1.67
†	6.24	6.51	5.62	6.99	5.06	5.72	6.28	4.95	6.43	6.34	6.12	6.08	6.37	5.84	5.70	5.79	5.15	5.51	5.69	5.39	5.72	5.18	6.36	4.76	5.13	5.58

* The figures in this row give the totals for the month.

† The totals from January 1st.

NOTE.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(April, 1901.)

The month may be divided: the first half being wet and cold, and the latter half dry, and, with the exception of the last four days, very warm. Vegetation made no progress during the first half. At Croydon the chestnut came into leaf on the 1st, the oak and beech on the 17th, and the ash on the 28th; at Sidcup the apricot flowered on the 3rd, the plum on the 15th, the cherry on the 21st, and the pear on the 25th; whilst at Nutfield, *Ribes* flowered on the 21st, blue squill on the 25th, and the wild cherry on the 27th. The wryneck and swallow were seen on the 8th at Nutfield; the swallow only at Morden on the 13th, at Sanderstead on the 18th, at Upper Gatton on the 19th, and at Abinger and Beddington on the 20th. The cuckoo was heard at Morden on the 7th, at Sanderstead on the 9th, at Abinger on the 14th, at Upper Gatton on the 18th, at Nutfield on the 19th, and Beddington on the 22nd; whilst the nightingale was heard at Sevenoaks on the 17th, at Upper Gatton on the 21st, at Beddington on the 22nd, and at Abinger and Nutfield on the 23rd. Rain was much wanted on the heavy lands at the end of the month. Solar halos were seen at Greenwich on the 2nd, 5th, 10th, 16th, 18th, 23rd, 24th, and 25th, at Upper Gatton on the 2nd, 18th, and 24th, and at Wallington on the 24th and 25th; and lunar halos were seen at Greenwich on the 4th and 24th, and at Upper Gatton, Sanderstead, and Beddington on the 4th. There was hail at Morden on the 2nd, at Raynes Park on the 12th, 15th, and 16th, at Nutfield on the 13th, 15th, and 16th, and at Upper Gatton and Greenwich on the 15th and 16th; and snow on the 16th at Greenwich, Upper Gatton and Raynes Park. At Sanderstead a sulphur butterfly was seen on the 7th, and a tortoiseshell butterfly and a yellow one on the 18th. The rainfall is nearly a quarter of an inch above the average. The month has been somewhat unhealthy, whooping cough being very prevalent, whilst there are cases of measles, diphtheria, and scarlet fever in some parts. The mean temperature of the month is about one degree above the average, and was at Worcester Park 48.7°, at Croydon (Whitegift) 48.4°, at Wallington 48.2°, at Croydon (Duppas House) 48°, at Chipstead 47.9°, and at Wallingham 47.4°. There were recorded at Wallington 196.4 hours of sunlight, which is 9 per cent. above the April mean of the fifteen years 1886–1900.

F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
1	..	..	..	..	..
2	..02	..01	..	..01	..50
3	..60	..54	..46	..62	..
4	..	..	..	..	..
5	..01	..01	..01	..	..
6	..12	..11	..10	..16	..10
7	..03	..03	..	..05	..04
8	..12	..10	..06	..09	..04
9	..03	..02	..	..01	..05
10	..23	..22	..21	..25	..23
11	..11	..10	..14	..25	..20
12	..06	..0613
13	..16	..12	..13	..16	..
14	..08	..09	..08	..06	..07
15	..14	..10	..11	..12	..10
16	..08	..06	..02	..12	..08
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25	..02	..01
2601
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*	1.81	1.59	1.32	1.90	1.54
†	5.60	4.96	3.91	5.70	3.84

Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Torring (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	Reigate(Hill)	Upper Gatton	Mersham	Harp's Oak	Chislestead	Chaldon	Caterham	Westerham (Hill Est.)	Westerham (Town)	Knockholt (field gau.)	Knockholt (tower gau.)	Ocheving Park	Sevenoaks	Chelsham	Warling- ham	Kenley	Sander- stead	Burgh Heath	Leather- head
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4
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6	02	04	03	04	05	05	02	04	05	04	06	04	06	06	07	10	17	09	09	15	15	05	07	07	07	03
7	..	01	..	01	08	08	01	10	09	02	12	09	01	02	04	10	11	12	12	13	20	04	02	02	04	..
8	05	04	04	18	17	18	17	10	09	19	09	09	15	15	14	10	11	26	26	11	20	26	26	24	24	..
9	12	15	11	84	96	101	59	71	69	115	92	63	109	126	14	32	23	23	23	23	124	118	122	122	15	..
10	01	04	04	16	16	04	04	..	01	01	01
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29	05	05	04	05	14	15	05	04	07	11	07	06	09	15	04	03	27
30	23	26	22	19	18	19	18	02	22	17	20	20	20	23	15	07	18	18	13	13	20	17	14	14	18	..
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*	48	56	44	131	158	166	102	91	113	168	137	103	160	188	81	70	75	74	92	85	179	201	184	185	83	41
†	889	898	915	904	879	914	859	846	894	959	933	939	964	1071	862	746	837	548	930	782	935	985	1007	899	871	797

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for May is 1.97 in.

May, 1901.

Day of Mo.	D'Abernon Chase	Oxshott	Banstead	Sutton	Carshalton	Wellingdon	Bedding- ton	Croydon (Brinn. Bn.)	Croydon (Wm. N. rd.)	Croydon (Dup. H.)	Croydon (Whitgift)	Croydon (Wob. rd.)	Croydon (Wdm. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington (Hills)	Addington (Park Km.)	Addington (Pump. St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
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+	6.61	6.60	10.02	7.44	6.83	8.17	8.15	7.75	8.52	8.17	8.79	8.54	7.96	7.76	8.71	9.33	9.80	9.42	9.79	7.19	7.55	7.87	5.91	7.09	8.20	8.12

* The figures in this row give the totals for the month. † The totals from January 1st

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for May is 1·97 in.

May, 1901.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Surbiton	Kingston	Richmond	Putey Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartford.)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Bilham
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	·07	·05	·04	·04	·06	·05	·05	·05	·03	·05	·04	·05	·05	·06	·05	·04	·05	·05	·05	·05	·01	·06	·07	·07	·05	·02
7	·10	·10	·06	..	..	..	..	..	..	..	·02	..	·03	·03	·07	·07	·09	·09	·07	·10	·10	·11	·32	·30	·45	·34
8	·20	·24	·08	·05	·05	·07	·07	·15	·03	·03	·02	·07	·13	·04	·09	·06	·09	·13	·05	·13	·14	·18	·24	·15	·22	·15
9	1·12	·93	1·02	·43	·27	·26	·26	·01	·16	·09	·08	·14	·18	·20	·26	·32	·45	·42	·59	·78	·84	·83	·59	·48	·60	·88
10	·02	·01	·01	·03	..	..	..	..	..	..	..	..	..	..	..	·01	·05	·04	·04	..	..	..	·04	·10	·05	·02
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	·01	·01	·02	..	·02	·02	·03	·01	..	·01	·01	..	..	·01	..	..	..	·02	..	·01	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	·13	·25	·25	·03	·03	·02	·03	·03	·02	·04	·04	·02	·02	·04	·02	·02	·09	·07	·07	·13	·18	·18	·08	·01	·02	·15
30	·08	·07	·06	·05	·02	·03	·04	·03	·05	·07	·05	·05	·05	·05	·03	·03	·03	·04	·06	·05	·06	·06	·06	·03	·02	·03
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*	1·72	1·66	1·53	·65	·45	·45	·48	·36	·30	·28	·26	·34	·46	·42	·53	·55	·80	·78	·94	1·23	1·39	1·42	1·42	1·13	1·34	1·66
†	7·96	8·17	7·15	7·64	5·51	6·17	6·76	5·31	6·73	6·62	6·38	6·42	6·83	6·26	6·23	6·34	5·95	6·29	6·63	6·62	7·11	6·60	7·78	5·89	6·47	7·24

The figures in this row give the totals for the month.

† The totals from January 1st.

Note.—The observations are taken at 9 a.m., except at Redhull, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Erixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(May, 1901.)

The month, as a whole, has been somewhat cold, and in parts exceedingly dry. The thunderstorm on the 9th, though general throughout the district, was exceedingly variable as to its rainfall, the amounts varying from .11 in. at Denbies, Dorking, to 1.26 in. at Caterham. There was also a slight thunderstorm on the 29th. Fogs occurred at Greenwich on the 1st, 3rd, and 6th; at Morden on the 2nd and 26th; and Clapham Park on the 8th. Hail occurred on the 8th and 9th throughout the district. In the thunderstorm on the 9th a house was struck with lightning at Canning Road, Croydon. A solar halo was seen at Greenwich, Clapham Park, and Upper Gatton on the 28th; and a lunar one at Greenwich, Beddington, and Upper Gatton on the same evening. The month has not been a very healthy one, diphtheria occurring in several places, and measles and whooping cough being prevalent in the district. The want of rain during the latter half of the month has been disastrous. There is practically no hay crop, and round Nutfield the turnip fly is working havoc. At Nutfield cherries and plums look well, but apples are a failure. A swift was seen at Wallington on the 15th. At Croydon the hawthorn flowered on the 15th; at Wallington the purple lilac and the white lilac flowered on the 13th, the white chestnut and the red chestnut on the 14th, and the laburnum on the 21st; at Nutfield the pink thorn and the white thorn flowered on the 28th; and at Sandstead roses and honeysuckle were out on the 28th. The rainfall is very variable, but, as a rule, below the average. The mean temperature of the month is slightly over the average, and was at Croydon (Duppas House) 54.8°, at Worcester Park 53.5°, at Croydon (Whitgift) 53.3°, at Chipstead 52.9°, at Wallington 52.7°, and at Warlingham 51.4°. There were recorded at Wallington 243.7 hours of sunlight, which is 8 per cent. above the May mean of the fifteen years 1886-1900.

F. CAMPBELL-BAYARD, F.R.Met.Soc., *Hon. Sec.*

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
1	..	..	..	..	..
2	..	..	..	..	..
3	..	..	..	..	..
4	..	..	..	..	..
5	..	..	..	..	..
6	-.05	-.05	..	-.03	-.03
7	-.29	-.23	-.24	-.09	-.06
8	-.27	-.26	-.12	-.07	-.08
9	-.95	-.95	-.80	-.42	-.25
10	..	..	..	..	..
11	..	..	..	..	..
12	..	..	..	..	..
13	..	..	..	..	..
14	..	..	..	..	..
15	..	..	..	..	..
16	..	..	..	..	..
17	..	..	..	..	..
18	..	..	..	..	..
19	..	..	..	..	..
20	..	..	..	..	..
21	..	..	..	..	..
22	..	..	..	..	..
23	..	..	..	..	..
24	..	..	..	..	..
25	..	..	..	..	..
26	..	..	..	..	..
27	..	..	..	..	..
28	..	..	..	..	..
29	-.20	-.17	-.20	-.07	-.02
30	-.03	-.03	-.06	-.04	-.02
31	..	..	..	..	..
*	1.79	1.69	1.43	.72	.46
†	7.39	6.65	5.34	6.42	4.30

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for June is 1.95 in.

June, 1901.

Day of Mo.	D'Abernon Chase	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	(Croydon Bn.)	(Croydon Wm.N.rd.)	(Croydon Dup. H.)	(Croydon Whitgift)	(Croydon Vob. rd.)	(Croydon Wdml.rd.)	(Croydon Park Hill)	(Croydon Ashbn.rd.)	Addington Hills	Addington (Park Ln.)	Addington (Trump.St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley	
1	IN.	.08	.05	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.05	.07	.06	.05	.08	.08	.05	.06	.06	.06	.06	.07
2																											
3	.07	.10	.04	.21	.17	.21	.17	.20	.28	.27	.31	.23	.20	.23	.24	.15	.06	.02	.01								
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12	.08	.08	.08	.08	.09	.09	.10	.09	.09	.10	.09	.11	.13	.09	.11	.09	.09	.09	.08	.09	.11	.14	.06	.13	.12	.12	
13	.05	.05	.05	.05	.05	.05	.05	.04	.04	.03	.04	.05	.04	.03	.04	.04	.05	.06	.04	.04	.02	.03	.03	.03	.03	.04	
14																											
15																											
16	.04	.02	.01		.01		.01		.01	.01	.02	.03	.01	.02	.03	.01	.12	.01	.01	.01	.01						
17																											
18																											
19	.07	.06	.08	.04	.05	.04	.06	.05	.05	.06	.05	.06	.05	.05	.07	.06		.07	.06	.05	.04	.06	.05	.06	.05	.06	
20	.01	.01	.01	.01	.37	.33	.31	.32	.35	.35	.35	.34	.32	.38	.47	.67	.83	.76	.73	.81	.69	.56	.38	.61	.72	.72	
21	.37	.30	.43	.35	.01																						
22																											
23																											
24																											
25																											
26																											
27																											
28																											
29	.37	.39	.23	.32	.39	.23	.12	.10	.08	.09	.09	.09	.08	.07	.09	.08	.07	.11		.05	.03	.08	.05	.06	.05	.08	
30	.32	.31	.41	.49	.50	.56	.50	.56	.50	.54	.60	.62	.60	.60	.65	.58	.68	.59	.90	1.04	.98	.23	.03	.70	.86	1.03	
*	1.44	1.40	1.40	1.59	1.69	1.56	1.36	1.41	1.45	1.51	1.61	1.60	1.49	1.54	1.74	1.76	1.87	1.78	1.88	2.18	1.94	1.20	.68	1.71	1.99	2.27	
+	8.05	8.00	11.42	9.03	8.52	9.73	9.51	9.16	9.97	9.68	10.40	10.14	9.45	9.30	10.45	11.09	11.67	11.20	11.67	9.37	9.29	9.07	6.59	8.80	10.19	10.39	

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for June is 1.95 in.

June, 1901.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Basher	West Molesey	Sturbiton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartm. rd.)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham	
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	
2	·06	·05	·04	·03	·03	·05	·05	·04	·03	·03	·02	·02	·03	·03	·03	·04	·03	·04	·04	·04	·03	·05	·04	·08	·06	·09	·05
3	·04	·15	·29	·15	·03	·08	·13	·23	·19	·14	·13	·20	·08	·05	·03	·02	·04	·08	·10	·09	·06	·03	·07	·	·	·	
4	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
5	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
6	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
7	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
8	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
9	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
10	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
11	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
12	·14	·12	·08	·14	·09	·17	·16	·06	·06	·06	·06	·05	·10	·11	·12	·09	·11	·10	·11	·14	·14	·12	·13	·04	·07	·08	
13	·03	·05	·05	·05	·04	·05	·05	·04	·03	·04	·03	·03	·04	·03	·04	·	·04	·04	·04	·01	·05	·04	·05	·03	·04	·03	
14	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·01	·	·	·	·	·	·	
15	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
16	·02	·02	·	·01	·03	·01	·02	·	·	·01	·	·	·	·04	·04	·04	·04	·04	·05	·03	·05	·	·	·	·	·	
17	·01	·	·	·	·02	·	·	·	·	·	·	·	·	·01	·01	·	·	·01	·01	·01	·09	·	·	·	·	·	
18	·	·	·	·	·	·	·	·	·	·01	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
19	·05	·06	·08	·04	·07	·06	·05	·04	·04	·06	·06	·04	·05	·06	·06	·06	·05	·06	·08	·08	·05	·10	·07	·07	·03	·06	·07
20	·02	·01	·	·01	·	·	·01	·	·01	·02	·01	·	·	·02	·01	·	·	·01	·01	·01	·01	·37	·37	·01	·01	·	·01
21	·72	·54	·46	·53	·35	·36	·41	·33	·41	·22	·12	·20	·23	·18	·26	·53	·47	·50	·45	·38	·37	·37	·65	·67	·83	·56	
22	·	·	·	·	·	·	·	·	·	·	·01	·	·	·	·	·	·	·	·01	·	·	·	·	·	·	·	
23	·	·	·	·	·	·	·	·	·02	·	·	·01	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
24	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
25	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
26	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
27	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
28	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
29	·06	·12	·09	·39	·32	·44	·46	·44	·46	·42	·38	·48	·38	·32	·26	·75	·16	·22	·08	·22	·10	·08	·09	·13	·16	·07	
30	·96	·93	·67	·52	·61	·48	·50	·52	·42	·39	·37	·40	·52	·48	·68	·30	·77	·84	·86	·93	·87	·79	·30	·26	·10	·43	
*	2 10	2 06	1 76	1 87	1 59	1 70	1 84	1 75	1 67	1 40	1 19	1 43	1 45	1 33	1 54	1 33	1 71	1 94	1 86	2 02	1 79	1 59	1 47	1 22	1 40	1 47	
+	10 06	10 23	8 91	9 51	7 10	7 87	8 60	7 06	8 40	8 02	7 57	7 85	8 28	7 59	7 77	8 17	7 66	8 23	8 49	8 64	8 90	8 19	9 25	7 11	7 87	8 71	

The figures in this row give the totals for the month.

† The totals from January 1st.

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

Note.—As Mr. J. D. Grant is no longer in the employment of the Sutton District Water Company, the observations at Burgh Heath and Sutton are now under the control, as observer, of Mr. P. Anderson, the Secretary of the Company.

NOTES.

(June, 1901.)

The month has been cold and, until the last two days, dry. The maximum thermometer in the shade touched 80° only once, whilst on the 19th there was a frost on the grass both at Croydon and Nutfield, and possibly in other parts of the district. The dry weather has been most prejudicial, for there is no hay crop, and the apples and pears have been falling from the trees. Strawberries were fine and good. The health of the district has been good. A somewhat severe thunderstorm occurred on the night of the 29th–30th, but there has been no damage reported. Solar halos were observed at Greenwich on the 7th, 9th, 19th, 21st, 28th, and 29th; at Upper Gaddon on the 7th, 19th, and 29th; at Clapham Park on the 7th and 19th; and at Croydon on the 7th, where also a very fine sun-bar was seen after sunset on the 26th. The rainfall is very nearly half an inch below the average. The mean temperature of the month varies between one degree to half a degree below the average, and was at Chipstead 59·6°, at Croydon (Duppas House) 59·2°, at Worcester Park 59°, at Croydon (Whitgift) 58·6°, at Wallington 58·4°, at Redhill 58·3°, and at Waringham 56·8°. There were recorded at Wallington 23·8 hours of sunlight, which is five per cent. above the June mean of the fifteen years 1886–1900.

F. CAMPBELL-BAYARD, F.R.Met.Soc., *Hon. Sec.*

Day of Mo.	Greenwich	Peppford	Nimhead	Brixton	Battersea
1	IN. .04	IN. .03	IN. .	IN. .03	IN. .02
2	..	..	..	..	..
3	..	..	..	..	..
4	..	..	..	..	..
5	..	..	..	..	..
6	..	..	..	..	..
7	..	..	..	..	..
8	..	..	..	..	..
9	..	..	..	..	..
10	..	..	..	..	..
11	..	..	..	..	..
12	..07	..07	..09	..16	..09
13	..03	..02	..02	..04	..01
14	..	..	..	..	..
15	..	..	..	..	..
16	..01	..01	..01	..03	..02
17	..	..	..	..	..
18	..	..	..	..	..
19	..07	..05	..05	..06	..04
20	..	..	..	..	..
21	..35	..36	..43	..42	..38
22	..	..	..	..	..
23	..	..	..	..	..
24	..	..	..	..	..
25	..	..	..	..	..
26	..	..	..	..	..
27	..	..	..	..	..
28	..	..	..	..	..
29	..29	..12	..08	..25	..18
30	..64	..61	..70	..84	..85
*	1·53	1·27	1·38	1·83	1·59
†	8·92	7·92	6·72	8·25	5·89

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for July is 2.30 in.

July, 1901.

Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorking (Denbies)	Redhill	Nuthield (old gauge)	Nuthield (new gauge)	Buckland	Reigate Hill	Upper Gatton	Mersham	Harp's Oak Cottage	Chipsstead	Chaldon	Caterham	Westerham (Hill Est.)	Westerham (Town)	Knockholt (field gau.)	Knockholt (tower ga.)	Chevening Park	Sevenoaks	Chelsham	Warling- ham	Kenley	Sander- stead	Burgh Heath	Leather- head
1
2
3
4
5
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12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
*	1.77	2.25	2.59	1.97	2.45	2.52	1.43	2.09	1.94	1.75	2.52	2.07	1.76	1.40	2.13	.80	1.90	1.19	1.49	1.23	.83	.98	1.21	1.17	1.81	1.74
†	13.10	13.49	13.75	12.67	12.87	13.29	11.74	12.09	12.57	12.92	13.47	12.90	13.25	13.95	12.54	9.74	11.92	8.40	12.58	10.97	11.93	12.41	13.07	11.68	11.88	11.41

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for July is 2.30 in.

July, 1901.

Day of Mo.	D'Abernon Chase	Oxshott	Banstead	Sutton	Carshalton	Wallington	Beddington	Croydon (Brim. Bn.)	Croydon (Wm. N. rd.)	Croydon (Dup. H.)	Croydon (Whitgift)	Croydon (Wob. rd.)	Croydon (Wdml. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington Hills	Addington (Park Km.)	Addington (Rump. St.)	West Wickham	Farnborough	Orpington	Farningham Hill	Southfleet	Chislehurst	Bickley	Bromley
1
2
3
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5
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11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
*	1.51	1.60	1.73	2.67	2.08	1.49	1.27	1.48	1.41	1.50	1.77	1.81	1.85	1.48	1.39	1.36	1.12	1.47	1.13	1.51	1.72	1.32	1.76	1.79	1.40	1.38
†	9.56	9.60	13.15	11.70	10.60	11.22	10.78	10.64	11.38	11.18	12.17	11.95	11.30	10.78	11.84	12.45	12.79	12.67	12.80	10.88	11.01	10.39	8.95	10.59	11.59	11.77

* The figures in this row give the totals for the month.

† The totals from January 1st.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Surbiton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartmouth)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
2
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18
19
20
21
22
23
24
25
26
27
28
29
30
31
*	1.44	1.19	1.47	2.95	1.79	1.80	2.05	1.61	1.31	2.51	2.55	1.48	2.52	1.54	1.67	1.85	2.55	2.76	2.16	1.61	1.34	1.32	2.32	1.63	1.40	1.41
†	11.50	11.42	10.38	12.46	8.89	9.67	10.65	8.67	9.71	10.53	10.12	9.33	10.80	9.13	9.44	10.02	10.21	10.99	10.65	10.25	10.24	9.51	11.57	8.74	9.27	10.12

* The figures in this row give the totals for the month.

† The totals from January 1st.

Day of Mo.	Greenwich	Deptford	Northhead	Brixton	Battersea
1	in. .11	in. .11	in. .19	in. .22	in. .14
2	..	..	..	..	..
3	..	..	..	..	..
4	..	..	..	..	..
5	..	..	..	..	..
6	..	..	..	..	..
7	..	..	..	..	..
8	..	..	..	..	..
9	..	..	..	..	..
10	..	..	..	..	..
11	..	..	..	..	..
12	..	..	..	..	..
13	..	..	..	..	..
14	..	..	..	..	..
15	..	..	..	..	..
16	..	..	..	..	..
17	..	..	..	..	..
18	..	..	..	..	..
19	..	..	..	..	..
20	..	..	..	..	..
21	..	..	..	..	..
22	..01	..	..02	..	..05
23	..01	..02	..01	..05	..05
24	..12	..17	..03	..27	..21
25	..05	..19	..45	..92	1.78
26	..87	..57	..40	..45	..52
27	..24	..15	..06	1.29	..84
28	..28	..08	..13	..01	..02
29	..	..	..	..	..
30	..	..	..	..	..
31	..	..	..	..	..
*	1.69	1.29	1.29	3.21	3.61
†	10.61	9.21	8.01	11.46	9.50

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES. (July, 1901.)

The month has been one of about average temperature, but with a rainfall of, in most places, about half an inch below the average. There was an absolute drought after the 2nd of between nineteen and twenty days in many places, and a partial drought in others. Though the thunderstorm on the 25th seems to have been general throughout the district, the rain that accompanied it varied very greatly in amount, being 1.78 in. at Battersea, and .01 in. at Buckland. Lightning was seen and thunder heard on several days. The month has been fairly healthy, though scarlet fever has been somewhat prevalent. Fog occurred on several days after the 10th. Solar halos were seen at Greenwich on the 3rd, at Upper Gatton on the 3rd and 19th, and Wallington on the 19th. In most places the 19th seemed to have been the warmest day. The mean temperature of the month is about the average, and was at Worcester Park 65.2°, at Croydon (Whitgift) 65.1°, at Chipstead and Wallington 64.5°, at Warringtonham 63.9°, and at Redhill 63.8°. Limes flowered at Sidcup on the 4th. There were recorded at Wallington 250.4 hours of sunlight, which is nine per cent. above the July mean of the fifteen years 1886-1900.

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Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorking (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	Reigate Hill	Upper Gatton	Mersham	Harp's Oak Cottage	Chipstead	Chaldon	Caterham	Westharm (Hill Dst.)	Westharm (Town)	Knockholt (field gau.)	Knockholt (tower ga.)	Ovening Park	Sevenoaks	Chelsham	Warling- ham	Kenley	Gander- stead	Burgh Heath	Leather- head
1
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28
29
30
31
*	1.76	2.06	1.90	2.19	2.04	2.16	1.93	2.15	2.54	2.15	2.35	2.44	2.25	2.25	2.12	2.30	2.03	1.96	2.25	1.97	1.99	2.18	2.47	1.96	1.87	1.77
†	14.86	15.55	15.65	14.86	14.91	15.45	13.67	14.24	15.11	15.07	15.82	15.34	15.50	16.20	14.66	12.04	13.95	10.36	14.83	12.94	13.92	14.59	15.54	13.64	13.75	13.18

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for August is 2.30 in.

August, 1901.

Day of Mo.	D'Abernon	Chase	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	Groydon (Brim. Bn.)	Groydon (Vn. N. rd.)	Groydon (Dup. H.)	Groydon (Whitef.)	Groydon (Web. rd.)	Groydon (Vaml. rd.)	Groydon (Park Hill)	Groydon (Ashburd.)	Addington Hills	Addington (Park Fm.)	Addington (Pump St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..04	..02	..11	..30	..16	..25	..19	..08	..	..	..15	..31	..31
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..02	..01	..01	..	..	..	..	..	..	..	..	..	..31
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..08	..08	..07	..	..07	..09	..	..	..	..	..	..	..01
4	..08	..08	..08	..07	..01	..01	..03	..05	..01	..06	..07	..05	..08	..06	..01	..08	..07	..01	..02	..02	..	..	..07	..06	..06	..07	..09
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01	..	..01	..	..01	..	..01	..	..	..02	..	..01	..01
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..09	..09	..10	..13	..07	..07	..18	..17	..09	..08	..08	..08	..15	..07	..10	..08	..07	..	..12	..10	..	..07	..05	..07	..13	..12	..11
11	..	..	..	..03	..01	..	..01	..02	..	..01	..	..01	..02	..	..27	..	..02	..03	..01	..	..06	..17	..22	..18	..22	..22	..01
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..20	..20	..22	..29	..06	..25	..22	..23	..25	..06	..07	..10	..05	..02	..25	..24	..03	..15	..22	..20	..	..	..	..	..	..	..23
14	..	..	..02	..01	..06	..02	..04	..08	..06	..09	..07	..25	..05	..02	..27	..03	..08	..	..	..	..	..	..	..	..	..	..04
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..40	..33	..23	..20	..25	..25	..26	..24	..26	..30	..26	..26	..27	..31	..44	..35	..34	..34	..	..	..36	..32	..22	..27	..28
25	..39	..39	..07	..03	..04	..08	..08	..19	..19	..20	..18	..25	..21	..12	..23	..29	..71	..11	..08	..13	..15	..17	..17	..15	..16	..13	..15
26	..	..	..77	..71	..79	..70	..82	..76	..76	..70	..75	..78	..75	..74	..72	..71	..71	..12	..74	..77	..68	..66	..61	..46	..58	..58	..60
27	..80	..80	..	..	..	..	..	..	..	..	..01	..	..	..	..01	..01	..02	..	..01	..01	..01	..	..	..	..	..	..
28	..	..	..	..01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..01
29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	..	..	..	..32	..36	..38	..38	..37	..38	..36	..36	..42	..40	..40	..35	..38	..33	..35	..34	..36	..31	..27	..32	..28	..28	..31	..32
31	..32	..32	..32	..32	..32	..38	..38	..37	..38	..36	..36	..42	..40	..40	..35	..38	..33	..35	..34	..36	..31	..27	..32	..28	..28	..31	..32
*	1.88	1.98	1.93	1.87	1.87	1.77	2.08	2.16	2.09	2.00	2.04	2.26	2.17	1.92	2.09	2.16	2.24	2.40	2.11	2.27	2.00	1.84	2.05	1.60	1.78	2.11	2.17
†	11.44	11.58	15.08	13.57	12.87	13.30	12.94	12.73	13.38	13.88	13.22	14.43	14.12	13.22	12.87	14.00	14.69	15.19	14.78	15.07	12.88	12.85	12.44	9.95	12.37	13.70	13.94

* m. = inches; † m. = gallons to this now give the totals for the month.

† The totals from January 1st.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Haynes Park	New Malden	Worcester Park	Fisher	West Molesey	Surbiton	Kingston	Richmond	Putney Heath	Vandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartmouth)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
2
3
4
5
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21
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23
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26
27
28
29
30
31
*	2.21	1.97	1.88	1.93	1.90	1.94	1.96	1.86	1.84	1.74	1.92	1.92	2.10	1.80	1.89	2.11	2.02	1.97	2.02	1.71	1.94	1.88	1.73	1.42	1.33	1.91
†	13.71	13.39	12.36	14.39	10.79	11.61	12.61	10.53	11.55	12.27	12.04	11.25	12.90	10.93	11.33	12.13	12.23	12.96	12.67	11.96	12.18	11.39	13.30	10.16	10.60	12.03

* The figures in this row give the totals for the month.

† The totals from January 1st.

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
*	2.03	1.89	1.72	2.20	1.73
†	12.64	11.10	9.73	13.66	11.23

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(August, 1901.)

The month has been warm, though somewhat variable in temperature. The first three weeks were warm and fairly dry, whilst the last week was very cold and wet. The month has been rather unhealthy, diarrhoea being very prevalent. A thunderstorm with lightning and hail was experienced in most parts of the district on the 26th. Fog occurred generally throughout the district in the early mornings of the 22nd, 23rd, and 24th, and also at Greenwich on the 25th. The harvest is practically finished, and is somewhat variable, the crops on heavy soil being good, whilst those on the light lands are deficient. There is no disease in the potatoes about here. Thunder was heard at Upper Gattton on the 26th and 29th, at Wallington on the 12th and 26th, and at Greenwich, Clapham Park, and Croydon on the 26th. Solar halos were observed at Greenwich on the 3rd, 17th, 19th, and 29th, at Upper Gattton on the 17th and 19th, at Croydon on the 17th, and Clapham Park on the 17th, 19th, and 29th; and a lunar halo was seen at Greenwich on the 30th. The rainfall is about one-third of an inch below the average. The mean temperature of the month is rather variable, but is about a degree above the average, and was at Croydon (Duppas House) 63.3°, at Chipstead 62.8°, at Croydon (Whitgift) and Worcester Park 62.7°, at Wallington 62.4°, and at Warringham 61.8°. There were recorded at Wallington 232.7 hours of sunlight, which is eight per cent. above the August average of the fifteen years 1886-1900.

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Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorking (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	ReigateHill	Upper Gatton	Mersham	Harp's Oak Collage	Chippstead	Chaldon	Caterham	Westersham (Hill Est.)	Westersham (Town)	Knockhole (field gau.)	Knockhole (lower ga.)	Chlovening Park	Sevenoaks	Chelsham	Warling- ham	Kenley	Sander- stead	Burgh Heath	Leather- head
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	27	31	36	20	19	19	20	21	21	19	21	20	20	21	23	20	26	26	26	26	26	20	20	18	..	30
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	01	07	07	08	01	07	07	06	06	06	05	06	05	05	07	07	07	06	06	05	01	06	..	08
11	07	07	07	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	18	10	00	07	07	10	09	06	09	09	00	07	16	15	06	85	..	..	..	..	..	95	82	73	..	74
17	14	18	14	14	11	10	08	21	27	24	22	23	12	22	23	13	15	15	15	15	02	30	13	09	..	22
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	01	..	..	..	..	..	01	..	..	..	..	..
19	02	..	..	..	..	..	23	24	22	36	25	22	33	38	39	21	13	13	13	03	42	42	34	26	..	42
20	75	50	55	29	35	40	02	..	03	04	03	03	05	06	12	..	08	08	08	03	06	06	05	01	..	36
21	16	13	18	03	02	02	01	04	03	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	01	..	..	..	..	..	03	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	01	..	03	..	01	..	03	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	01	01	..	..	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*	262	229	233	181	183	190	165	173	190	198	177	181	191	208	199	144	152	131	160	132	173	198	162	134	172	212
†	1748	1784	1798	1667	1674	1735	1532	1597	1701	1705	1759	1715	1741	1828	1665	1348	1547	1107	1643	1426	1565	1657	1716	1498	1547	1530

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for September is 2.30 in.

September, 1901.

Day of Mo.	D'Abernon	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	Croydon (Brnn. Bn.)	Croydon (Wm. N. rd.)	Croydon (Dup. H.)	Croydon (Whitgift)	Croydon (Wob. rd.)	Croydon (Wdml. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington Hills	Addington (Park Rm.)	Addington (Timp. St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
1	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	22	18	28	29	27	20	20	19	18	19	20	20	17	17	19	17	19	19	20	20	20	22	01	18	18	15
9	..	..	..	..	..	..	..	02	..	..	..	..	..	..	..	01	..	..	..	..	..	..	..	..	..	..
10	..	09	05	03	05	05	06	06	06	07	07	06	06	05	06	06	08	06	07	04	03	06	06	05	..	04
11	07	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	52	88	60	55	69	64	56	60	64	63	62	60	57	59	66	64	77	53	74	68	72	65	54	59	56
16	57	09	10	07	05	09	07	04	04	05	05	05	04	04	06	07	11	11	29	07	03	08	03	07	04	07
17	07	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	01	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	37	46	45	36	39	27	20	18	20	20	19	20	20	20	25	37	39	45	41	30	10	02	50	35	31
20	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	14	17	07	04	02	02	08	03	02	02	01	01	01	02	02	03	05	09	04	05	07	04	04	04	03	04
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	01	..	..	..	..	..	..	..	..	..	01
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	01	..	..	..	..	..	..	..	..	..	..	..	01	01	..	..	..	..	..	01	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	..	..	01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	01	..	..	..	..
*	1.47	1.42	1.86	1.48	1.30	1.44	1.32	1.10	1.08	1.17	1.16	1.13	1.08	1.05	1.13	1.27	1.44	1.61	1.58	1.51	1.31	1.25	.99	1.39	1.19	1.18
†	12.91	13.00	16.94	15.05	13.67	14.74	14.26	13.83	14.46	14.39	15.59	15.25	14.30	13.92	15.13	15.96	16.63	16.39	16.65	14.39	14.16	13.69	10.94	13.76	14.89	15.12

* in. = 0.0254 in. the sum gives the totals for the month. † The totals from January 1st.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Surbiton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartmouth)	Forest Hill (S&VWC)	Sidcup	Wimbledon	Dartford	Eltham
1																										
2	1.01																									
3																										
4																										
5																										
6																										
7																										
8	1.18	1.19	1.17	1.30	1.38	1.32	1.31	1.20	1.28	1.15	1.18	1.19	1.17	1.13	1.24	1.36	1.30	1.28	1.25	1.20	1.23	1.21	1.23	1.20	1.20	1.19
9																										
10	1.04	1.05	1.06	1.03	1.06	1.04	1.04	1.02	1.02	1.05	1.03	1.02	1.02	1.04	1.04	1.04	1.03		1.05	1.06	1.07	1.06	1.07	1.07	1.07	1.05
11																										
12																										
13																										
14																										
15																										
16	1.56	1.59	1.49	1.54	1.47	1.55	1.50	1.56	1.53	1.49	1.43	1.55	1.58	1.46	1.56	1.57	1.59	1.57	1.62	1.66	1.63	1.70	1.58	1.60	1.65	1.63
17	1.04	1.05	1.03	1.04	1.09	1.09	1.09	1.06	1.06	1.05	1.09	1.02	1.07	1.17	1.11	1.13	1.10	1.08	1.10	1.10	1.07	1.08	1.03	1.01	1.06	1.06
18																										
19																										
20	1.33	1.26	1.19	1.39	1.42	1.35	1.36	1.34	1.40	1.37	1.25	1.34	1.42	1.54	1.32	1.57	1.29	1.25	1.30	1.29	1.25	1.27	1.34	1.14	1.22	1.29
21	1.04	1.02	1.01	1.04	1.03		1.02	1.12	1.14	1.07	1.02	1.12	1.12	1.12	1.10				1.04		1.02	1.02	1.05	1.02	1.05	1.01
22																										
23																										
24																										
25																										
26																										
27																										
28																										
29																										
30																										
*	1.20	1.16	0.95	1.34	1.45	1.35	1.32	1.30	1.43	1.18	1.00	1.24	1.38	1.46	1.37	1.67	1.31	1.21	1.37	1.31	1.27	1.35	1.29	1.05	1.25	1.32
†	14.91	14.55	13.21	15.73	12.24	12.96	13.93	11.83	12.98	13.45	13.04	12.49	14.28	12.39	12.70	13.80	13.54	14.17	14.04	13.27	13.45	12.74	14.59	11.21	11.85	13.35

* The figures in this row give the totals for the month.

† The totals from January 1st.

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
1	IN.	IN.	IN.	IN.	IN.
2	..	..	..	..	..
3	..	..	..	..	..
4	..	..	..	..	..
5	..	..	..	..	..
6	..	..	..	..	..
7	..	..	..	..	..
8	·21	·20	·19	·31	·36
9	..	..	..	..	..
10	..	..	..	..	..
11	·04	·03	·03	·04	·03
12	..	..	..	..	..
13	..	..	..	..	..
14	..	..	..	..	..
15	..	..	..	..	..
16	·73	·68	·70	·59	·51
17	·11	·13	·09	·15	·14
18	..	..	..	..	..
19	..	..	..	..	..
20	·25	·23	·29	·33	·39
21	·01	..	·01	·01	·02
22	..	..	..	..	..
23	..	..	..	..	..
24	..	..	..	..	..
25	..	..	..	..	..
26	..	..	..	..	..
27	..	..	..	..	..
28	..	..	..	..	..
29	..	..	..	..	..
30	..	..	..	..	..
·	1·35	1·27	1·31	1·43	1·45
†	13·99	12·37	11·04	15·09	12·68

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(September, 1901.)

The month has been warm and dry, with but little rain except on the 8th, 16th, and 20th. It has been an unhealthy one, diphtheria and scarlet fever being prevalent. All garden crops have done well, and there seems very little disease amongst the potatoes. Wasps have been very numerous, especially about Nutfield. Many plants are in flower, such as roses, cornflower, wallflower, and dahlias, and are looking well. Dews were numerous and very heavy. Solar halos were seen at Greenwich on the 2nd, 7th, 22nd, and 24th, at Nutfield on the 10th, 17th, and 21st, at Upper Gaddon on the 2nd and 13th, and at Beddington on the 30th. Fogs occurred at Greenwich on the 10th, 16th, 25th, 26th, 29th, and 30th, at Clapham Park on the 16th, 25th, and 30th, and also in other places. The rainfall is about an inch below the average. The mean temperature of the month is about a degree above the average, and was at Croydon (Duppas House) 58·8°, at Worcester Park 58·5°, at Chipstead, Wallington, and Croydon (Whitgift) 58·0°, at Warlingham 57·4°, and at Redhill 55·7°. There were recorded at Wallington 153·3 hours of sunlight, which is three per cent. below the September average of the fifteen years 1886–1900.

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Day of Mo.	Abinger (The Hall)	Abinger (Hectory)	Dorking (Denbies)	Redhill	Nutfeld (old gauge)	Nutfeld (new gauge)	Buckland	Reigate Hill	Upper Gatton	Mersham	Harp's Oak	Chipstead	Chaldon	Caterham	Westwigham (Hill Est.)	Westwigham (Town)	Knockholt (field gau.)	Knockholt (tower ga.)	Chevening Park	Sevenoaks	Chelsham	Warling-ham	Kenley	Sanderstead	Burgess Heath	Leatherhead
1	.18	..	.10	.73	1.47	1.05	.18	.84	1.22	.80	2.07	.99	1.28	.73	.40	.45	..	..	.37	.45	..	IN.	IN.	.26	.09	..
2	..	.05	.19	.07	.01	..	..	.28	.34	.08	.73	..	1.15	..	..	..	..	..	.08	.16	..	IN.	IN.	.67	.08	..
3	.09	.02	.07	.03	.08	.09	.06	.06	.07	.08	.06	.05	..	.08	.03	..	..	..	.43	.08	..	IN.	IN.	.07	.07	..
4	.59	.72	.50	.68	.56	.58	.61	.58	.56	.53	.52	.64	.43	.50	.44	.62	..	..	..	.42	..	IN.	IN.	.48	.44	..
5	.03	.03	..	.02	.03	.02	.01	.02	.02	.09	.02	..	..	..	.01	..	..	..	..	.03	..	IN.	IN.	.01	..	..
6	.12	..	.15	.04	.07	.07	.03	.05	.05	.06	.09	.12	.14	.20	.19	.10	..	..	.23	.20	..	IN.	IN.	.12	..	..
7	.01	.02	..	..	..	..	..	.05	.04	..	..	..	..	..	..	..	..	..	..	.01	..	IN.	IN.	..	..	..
8	.05	.06	.07	.04	.04	.04	.04	..	..	.05	.04	.04	.02	..	..	..	..	..	.05	.04	..	IN.	IN.	.03	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
15	.16	.11	.10	.06	.08	.09	.07	.03	.09	.08	.09	.06	.10	.11	.31	.30	..	..	.08	.05	..	IN.	IN.	.09	..	..
16	.47	.48	.55	.33	.23	.24	.56	.41	.43	.40	.32	.56	.46	.63	.15	.17	..	..	.29	.15	..	IN.	IN.	.70	..	..
17	.14	.13	.08	.28	.30	.32	.26	.19	.14	.28	.18	.10	.37	.36	.23	.20	..	..	.24	.24	..	IN.	IN.	.12	..	..
18	.46	.71	.63	.68	.70	.75	.62	.56	.56	.69	.60	.54	.76	.78	.54	.45	..	..	.61	.57	..	IN.	IN.	.60	..	..
19	..	..	..	.01	.02	.02	..	.09	..	..	.02	..	..	..	.02	..	..	..	.02	.02	..	IN.	IN.	.01	..	..
20	.02	.02	.03	..	..	..	.03	..	.01	..	..	..	..	..	.06	..	..	..	..	.12	..	IN.	IN.	..	..	..
21	.02	.04	.08	.05	.08	.09	.03	.04	.05	.06	.04	.06	.03	.10	..	.21	..	..	.09	.09	..	IN.	IN.	.03	..	..
22	.06	.04	.05	.06	.01	.01	..	.05	.01	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	.01	..	..
23	..	..	..	..	..	..	.01	..	.11	.08	.10	.12	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
26	.01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
28	..	.02	..	.01	.05	.05	.02	..	.01	..	.01	.01	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
29	..	..	.05	.04	..	..	..	.05	.09	.10	.08	.09	.09	.14	.13	.08	..	..	.18	.08	..	IN.	IN.	.10	..	..
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
31	..	..	..	..	..	..	.01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	IN.	IN.	..	..	..
*	2.50	2.58	2.74	3.20	3.81	3.50	2.70	3.38	3.80	3.39	4.97	4.00	4.99	3.84	2.60	2.58	2.59	2.80	2.77	2.72	2.75	..	..	..	..	..
†	19.98	20.42	20.72	19.87	20.55	20.85	18.02	19.35	20.81	20.44	22.56	21.15	22.40	22.12	19.25	16.06	18.06	14.47	19.20	16.98	18.40	2.93	3.67	3.38	2.93	2.30
†	19.98	20.42	20.72	19.87	20.55	20.85	18.02	19.35	20.81	20.44	22.56	21.15	22.40	22.12	19.25	16.06	18.06	14.47	19.20	16.98	18.40	2.93	3.67	3.38	2.93	2.30

* The figures in this row give the totals for the month. † The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for October is 2.77 in.

October, 1901.

Day of Mo.	D'Abernon	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	(Croydon Bryn. Bn.)	(Croydon Wm. N. rd.)	Croydon (Dup. H.)	(Croydon Whitehill)	Croydon (Wob. rd.)	Croydon (Wdml. rd.)	(Croydon Park Hill)	Croydon (Ashbn. rd.)	Addington Hills	Addington (Park Fm.)	Addington (Trump. St.)	West Wickham	Larn- borough	Opyington	Farming- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
1
2	2.17	1.81	2.82	2.55	2.57	3.11	2.90	2.67	2.84	2.86	3.08	2.85	2.62	2.90	3.08	3.83	3.10	3.24	2.97	2.63	2.65	2.90	2.84	2.81	3.00	2.69
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*	2.17	1.81	2.82	2.55	2.57	3.11	2.90	2.67	2.84	2.86	3.08	2.85	2.62	2.90	3.08	3.83	3.10	3.24	2.97	2.63	2.65	2.90	2.84	2.81	3.00	2.69
†	15.08	14.81	19.76	17.60	16.24	17.85	17.16	16.50	17.30	17.25	18.67	18.10	16.92	16.82	18.21	19.79	19.73	19.63	19.62	17.02	16.81	16.59	13.28	16.57	17.89	17.81

* The figures in this row give the totals for the month.

† The totals from January 1st.

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(October, 1901.)

The month has been somewhat wet and fairly warm. It is difficult to say whether, taking the district as a whole, the rainfall is above or below the average, but probably it is slightly below. The rainfall on the 1st and 2nd is remarkable, more especially at Harp's Oak Cottage and Chaldon. The month, again, has been unhealthy, there being many cases of diphtheria and scarlet fever. The small-pox does not appear to have penetrated beyond the London area. The frost on the night of the 26th–27th was the most severe one in October since 1895, and all tender plants were cut off. Lightning was seen in parts of the district on the 1st, 6th, 7th, 8th, and 19th. At Clapham Park the thermometer on the 27th rose from 33·8° at 9 a.m. to 54·2° at noon. Solar halos were seen at Greenwich on the 1st, 13th, and 23rd, at Upper Gatton on the 13th, at Beddington on the 14th, and at Nutfield on the 19th and 21st. Lunar halos were seen at Greenwich, Wallington, Beddington, and Clapham Park on the 23rd, and at Nutfield on the 20th and 23rd. Thunder was heard at Greenwich and Sidcup on the 19th, on which day there was much hail at Wallington and Beddington. Fog occurred on many days, but on the 26th the observer at Sanderstead remarks that there was thick fog, but objects were visible at fifty yards. The mean temperature of the month is about one degree above the average, and was at Chipstead 51·3°, at Croydon (Duppas House and Whitgift) 50·9°, at Wallington 50·3°, at Worcester Park 50·1°, and at Waringham 49·5°. There were recorded at Wallington 108·9 hours of sunlight, which is three per cent. above the October average of the fifteen years 1886–1900.

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Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
	IN.	IN.	IN.	IN.	IN.
1	·17	·16	·15	·44	·46
2	·56	·44	·14	·36	·16
3	·14	·10	·03	·16	·16
4	·38	·37	·35	·45	·29
5	·01	·01	·17	·01	·17
6	·16	·17	·14	·25	·17
7	·03	·02	·02	·01	·01
8	·03	·02	·02	·01	·01
9	·03	·02	·02	·01	·01
10	·03	·02	·02	·01	·01
11	·03	·02	·02	·01	·01
12	·03	·02	·02	·01	·01
13	·03	·02	·02	·01	·01
14	·03	·02	·02	·01	·01
15	·12	·10	·09	·05	·04
16	·42	·56	·56	·44	·37
17	·03	·02	·02	·04	·30
18	·53	·48	·63	·15	·05
19	·01	·01	·01	·01	·01
20	·01	·01	·01	·01	·01
21	·01	·01	·01	·01	·01
22	·01	·01	·01	·01	·01
23	·01	·01	·01	·01	·01
24	·01	·01	·01	·01	·01
25	·01	·01	·01	·01	·01
26	·01	·01	·01	·01	·01
27	·01	·01	·01	·01	·01
28	·01	·01	·01	·01	·01
29	·02	·02	·01	·01	·01
30	·01	·01	·01	·01	·01
31	·01	·01	·01	·01	·01
Σ	2·60	2·45	2·09	2·64	2·01
+	16·59	14·82	13·13	17·73	14·69

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for November is 2.35 in.

November, 1901.

Day of Mo.	D'Abernon Chase	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	Croydon (Britm. Bn.)	Croydon (Wm. N. rd.)	Croydon (Dup. H.)	Croydon (Whitgift)	Croydon (Wob. rd.)	Croydon (Wdml. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington (Hills)	Addington (Park Fm.)	Addington (Pump. St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
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+	15.75	15.38	20.47	18.14	16.78	18.44	17.78	17.14	17.98	17.92	19.41	18.79	17.62	17.48	19.04	20.54	20.56	20.38	20.37	17.80	17.57	17.46	13.83	17.41	18.71	18.62

* The 85 years in this row give the totals for the month.

+ The totals from January 1st.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Surbiton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartmouth)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
1	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.
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†	18.16	17.77	16.69	19.75	15.10	15.28	16.47	13.82	15.36	15.59	15.01	14.43	16.56	14.63	14.95	16.68	16.60	17.44	17.20	16.56	16.49	16.00	18.33	14.40	15.05	16.98

* The figures in this row give the totals for the month.

† The totals from January 1st.

November, 1901.

Day of Mo.	Greenwich	Deptford	Nunhead	Brixton	Battersea
	IN.	IN.	IN.	IN.	IN.
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2	·01	..
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11	·01	·01	..	·01	..
12	·03	·02	..	·02	..
13	·35	·40	·29	·30	·25
14
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16
17
18	·01	..
19	·01	·01
20
21	·08	·08	·09	·09	·05
22	·16	·17	·10	·18	·09
23
24
25	·02	·02	..	·02	..
26	·01	·01	..	·01	..
27
28
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30
*	·67	·72	·48	·65	·39
+	17·26	15·54	13·61	18·38	15·08

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(November, 1901.)

A remarkably cold dry month. In the long record of Greenwich there are only four Novembers with a smaller rainfall, *viz.* in the years 1851, 1858, 1867, and 1871; in the Surbiton record, commencing in 1855, there are only two such years, *viz.* 1867 and 1871, and in the Wimbledon record, commencing in 1854, there are no such years. The mean temperature of the month is about 3° below the average. The mean temperature of 16th was only 25° at Wallington. There was a little snow on the 13th and 14th. There was much fog on many days, and on the 22nd there was a remarkable darkness about Nutfield, Redhill, and Upper Gattton from 0.50 to 1.20 p.m. The observer at Reigate Hill says that on the 21st a very perfect rainbow was seen in the north at 8.15 a.m. A solar halo was seen at Greenwich on the 6th, and a lunar one at Greenwich and Upper Gattton on the 20th. The month has been somewhat unhealthy, colds being especially prevalent, whilst there were many cases of diphtheria and scarlet fever and a few cases of small-pox. Vegetables are good and plentiful. The mean temperature of the month was at Croydon (Whitgift) 40°·8, at Croydon (Duppas House) and Warlingham 40°·4, at Wallington 39°·6, at Worcester Park 39°·3, and at Chipstead 36°·8. There were recorded at Wallington 34.4 hours of sunlight, which is 16.9 hours or six per cent. below the November mean of the fifteen years 1886-1900.

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Day of Mo.	Abinger (The Hall)	Abinger (Rectory)	Dorking (Denbies)	Redhill	Nutfield (old gauge)	Nutfield (new gauge)	Buckland	Reigate Hill	Upper Gatton	Mersham	Harp's Oak Cottage	Chipstead	Chaldon	Caterham	Westharm (Hill Est.)	Westharm (Town)	Knockholt (field gau.)	Knockholt (lower gau.)	Cherishing Park	Sevenoaks	Chesham	Warling-ham	Kenley	Sanderstead	Burgh Heath	Leather-head
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31																										
*	5.35	5.60	5.84	4.83	4.22	4.52	4.90	4.59	5.05	4.80	4.96	5.10	5.02	5.58	5.06	4.20	5.30	3.33	5.34	4.55	4.87	5.13	5.00	4.54	4.67	5.14
†	26.22	26.95	27.30	25.48	25.49	26.11	23.61	24.72	26.65	26.06	28.31	27.04	28.31	28.56	25.22	21.04	24.22	18.28	25.57	22.36	24.10	25.70	26.40	23.62	23.72	23.43

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for December is 1.95 in.

December, 1901.

Day of Mo.	D'Abemnon	Oxshott	Banstead	Button	Carshalton	Wallington	Bedding- ton	Croydon (Britm. Bn.)	Croydon (Wm. N. rd.)	Croydon (Dup. H.)	Croydon (Whitefri)	Croydon (Wob. rd.)	Croydon (Walm. rd.)	Croydon (Park Hill)	Croydon (Ashbn. rd.)	Addington Hills	Addington (Park Km.)	Addington (Temp. St.)	West Wickham	Ram- borough	Orpington	Laving- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
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*	4.06	3.66	5.04	3.95	3.63	4.25	4.07	3.40	4.28	4.02	4.26	4.06	3.89	3.30	4.13	4.22	4.36	4.66	4.62	4.65	4.52	4.08	3.76	3.71	4.03	3.72
†	19.81	19.04	25.51	22.09	20.41	22.69	21.85	20.54	22.26	21.94	23.67	22.85	21.51	20.78	23.17	24.76	24.92	25.04	24.99	22.45	22.09	21.54	17.59	21.12	22.74	22.34

† The totals from January 1st.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Wks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Surbiton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartford.)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
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*	389	365	321	336	257	302	326	251	353	305	305	315	333	291	294	313	305	290	327	303	318	306	363	342	333	333
†	2202	2142	1930	2311	1767	1830	1973	1633	1889	1864	1806	1758	1989	1754	1789	1981	1965	2034	2047	1959	1967	1906	2196	1782	1849	2031

* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

The 85 years (1816-1900) mean at Greenwich for December is 1.95 in.

December, 1901.

Day of Mo.	D'Abernon	Oxshott	Banstead	Sutton	Carshalton	Wallington	Bedding- ton	(Croydon Brim. Bn.)	(Croydon Wm. N. rd.)	(Croydon Dup. H.)	(Croydon Whitegift)	(Croydon Vob. rd.)	(Croydon Wdml. rd.)	(Croydon Park Hill)	(Croydon Ashburd.)	Addington Hills	Addington (Park Fm.)	Addington (Ump. St.)	West Wickham	Farn- borough	Orpington	Farning- ham Hill	Southfleet	Chislehurst	Bickley	Bromley
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*	4.06	3.66	5.04	3.95	3.63	4.25	4.07	3.40	4.28	4.02	4.26	4.06	3.89	3.30	4.13	4.22	4.36	4.66	4.62	4.65	4.52	4.08	3.76	3.71	4.03	3.72
†	19.81	19.04	25.51	22.09	20.41	22.69	21.85	20.54	22.26	21.94	23.67	22.85	21.51	20.78	23.17	24.76	24.92	25.04	24.99	22.45	22.09	21.54	17.59	21.12	22.74	22.34

DAILY RAINFALL.

The 33 years (1870-1902) mean at Greenwich for December is 1.33 in.

December, 1901.

Day of Mo.	Bromley Common	Beckenham	South Norwood	Morden	Wimbledon (Sew. Vks.)	Wimbledon (The Downs)	Raynes Park	New Malden	Worcester Park	Esher	West Molesey	Sutton	Kingston	Richmond	Putney Heath	Wandsworth Common	Clapham Park	Streatham	West Norwood	Upper Norwood	Forest Hill (Dartford)	Forest Hill (S&VWC)	Sidcup	Wilmington	Dartford	Eltham
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*	3.86	3.65	3.21	3.36	2.57	3.02	3.26	2.51	3.53	3.05	3.05	3.15	3.33	2.91	2.91	3.13	3.05	2.90	3.03	3.03	3.18	3.06	3.63	3.42	3.44	3.33
†	22.02	21.42	19.90	23.11	17.67	18.30	19.73	16.33	18.89	18.64	18.06	17.58	19.89	17.54	17.89	19.81	19.65	20.34	20.47	19.59	19.67	19.06	21.96	17.82	18.49	20.31

* The figures in this row give the totals for the month.

† The totals from January 1st.

December, 1901.

Note.—The observations are taken at 9 a.m., except at Redhill, Reigate Hill, Croydon (Ashburton Road), Addington (Park Farm), and Brixton (8 a.m.), Croydon (Woburn Road) (8.30 a.m.), and Sevenoaks (10 a.m.).

NOTES.

(December, 1901.)

This month is the exact opposite of November, which was the driest November for many years, whilst this month is one of the wettest Decembers at Greenwich since 1886, with the single exception of December, 1896, when the rainfall in December was the same as the present year. In the district generally we have to go back to December, 1876, for a greater December rainfall. Snow showers occurred on several days. Changes in temperature have been very frequent, and consequently the month may be considered as unhealthy. Scarlet fever and diphtheria have been prevalent, and influenza was increasing at the end of the month, and there were in several districts cases of small-pox. Colds have been very prevalent. Lightning was seen at Nutfield on the 9th; and the observer there says "that our first *Anemone pulgens* opened in the rock garden on the 27th, and there are plenty of primroses." At Abinger Hall the observer says "the birds are full of song." Solar halos were seen at Greenwich on the 10th, 23rd, and 29th, and at Upper Gaddon on the 10th; whilst a parhelion was seen at Greenwich on the 16th, and a lunar corona at Wallington on the 26th. At Chipstead the observer says: "The meteor on the 4th was a fine sight. It appeared at twenty minutes to six for two seconds. I could see all objects near me quite distinctly. In about eight seconds it disappeared." The mean temperature of the month is about the average, and was at Croydon (Whitgift) 39°·6, at Wallington 39°·4, at Croydon (Duppas House) 39°·2, at Worcester Park 39°·1, at Warlingham 38°·1, and at Chipstead 37°·9. There were recorded at Wallington 55·6 hours of sunlight, which is 16·7 hours or seven per cent. above the December average of the fifteen years 1886-1900.

F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

Day of Mo.	Greenwich	Deptford	Numhead	Brixton	Battersea
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5	·01	·01
6	..	·07	·01	·01	·05
7	·09	·23	·17	·13	·23
8	·24	·23	·16	·21	·18
9	·13	·18	·16	·02	..
10	·05	·04	·03	·03	·03
11	·05	·05	·06	·06	·05
12	·76	·65	·56	·76	·57
13	·12	·10	·10	·13	·11
14	·01	·01	..	·02	..
15
16	·07	·06	..	·09	·06
17
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23	·16	·13	·19	·17	·10
24	·65	·58	·53	·57	·48
25	..	·05	·04	·07	·02
26
27	·01	·26	·23	·30	·10
28	·29	·29	·26	·37	·44
29	·33	·29	·03	·11	·05
30	·08	·07	..	·05	·04
31	·05	·03	..	..	..
*	3·05	2·77	2·31	3·10	2·46
†	20·31	18·31	15·92	21·48	17·54

APPENDIX II.

Falls of 1·00 in. and upwards.

FEBRUARY 4TH.—Banstead 1·29 in.; Morden 1·23 in.; Dorking (Denbies) 1·20 in.; Abinger (The Rectory) 1·05 in.; Buckland 1·03 in.; Abinger (The Hall) 1·01 in.

MAY 9TH.—West Wickham 1·28 in.; Caterham 1·26 in.; Bickley 1·25 in.; Warlingham and Addington Hills 1·24 in.; Sanderstead 1·22 in.; Kenley 1·18 in.; Croydon (Ashburton Road) 1·16 in.; Merstham 1·15 in.; Bromley Common 1·12 in.; Addington (Park Farm) 1·11 in.; Addington (Pumping Station) 1·10 in.; Chaldon 1·09; Croydon (Park Hill) 1·03 in.; South Norwood 1·02 in.; Nutfield (new gauge) 1·01 in.

JULY 25TH.—Battersea 1·78 in.; Sutton 1·28 in.; Morden 1·16 in.; Dorking (Denbies) 1·04 in.

JULY 26TH.—Westerham (Hill Estate) 1·35 in.; Chislehurst 1·01 in.; Streatham 1·00 in.

JULY 27TH.—Brixton 1·29 in.; Kingston 1·25 in.

SEPTEMBER 16TH.—Abinger (The Hall) 1·18 in.; Chaldon 1·16 in.; Caterham 1·15 in.; Abinger (The Rectory) and Nutfield (new gauge) 1·10 in.; Buckland, Upper Gatton and Merstham 1·09 in.; Redhill, Nutfield (old gauge), and Chipstead 1·07 in.; Dorking (Denbies), and Harp's Oak Cottage 1·00.

OCTOBER 1ST.—Harp's Oak Cottage 2·07 in.; Nutfield (old gauge) 1·47 in.; Chaldon 1·28 in.; Upper Gatton 1·22 in.; Kenley 1·18 in.; Nutfield (new gauge) 1·05 in.; Morden 1·00 in.

OCTOBER 2ND.—Chaldon 1·15 in.; Addington Hills 1·09 in.

DECEMBER 12TH.—Dorking (Denbies) 1·82 in.; Leatherhead 1·78 in.; Banstead 1·67 in.; Chevening Park and Farnborough 1·65 in.; Orpington 1·61 in.; Warlingham 1·55 in.; Sanderstead and Addington (Pumping Station) 1·53 in.; Buckland 1·52 in.; Kenley 1·50 in.; Abinger (The Hall) and Chipstead 1·48 in.; West Wickham 1·45 in.; Westerham (Hill Estate) 1·44 in.; Redhill 1·43 in.; Caterham 1·42 in.; Harp's Oak Cottage 1·40 in.; Reigate Hill 1·39 in.; Wallington 1·38 in.; Upper Gatton 1·37 in.; Abinger (The Rectory) 1·35 in.; Addington Hills 1·34 in.; Croydon (Whitgift) 1·33 in.; Merstham and D'Abernon Chase 1·32 in.; Farningham Hill 1·31 in.; Chaldon, Addington (Park Farm), and Southfleet 1·30 in.; Nutfield (new gauge) 1·29 in.; Croydon (Ashburton Road) 1·26 in.; Croydon (Woburn Road)

1·25 in.; Croydon (Duppas House) 1·24 in.; Beddington 1·23 in.; Westerham (The Town), Sevenoaks, and Sutton 1·21 in.; Croydon (Waddon New Road) 1·20 in.; Bickley 1·16 in.; Croydon (Windmill Road) 1·15 in.; Oxshott 1·14 in.; Nutfield (old gauge) and Croydon (Brimstone Barn) 1·13 in.; Carshalton and Sidecup 1·10 in.; Bromley Common 1·09 in.; Worcester Park 1·08 in.; Bromley 1·03 in.; Chislehurst 1·00 in.

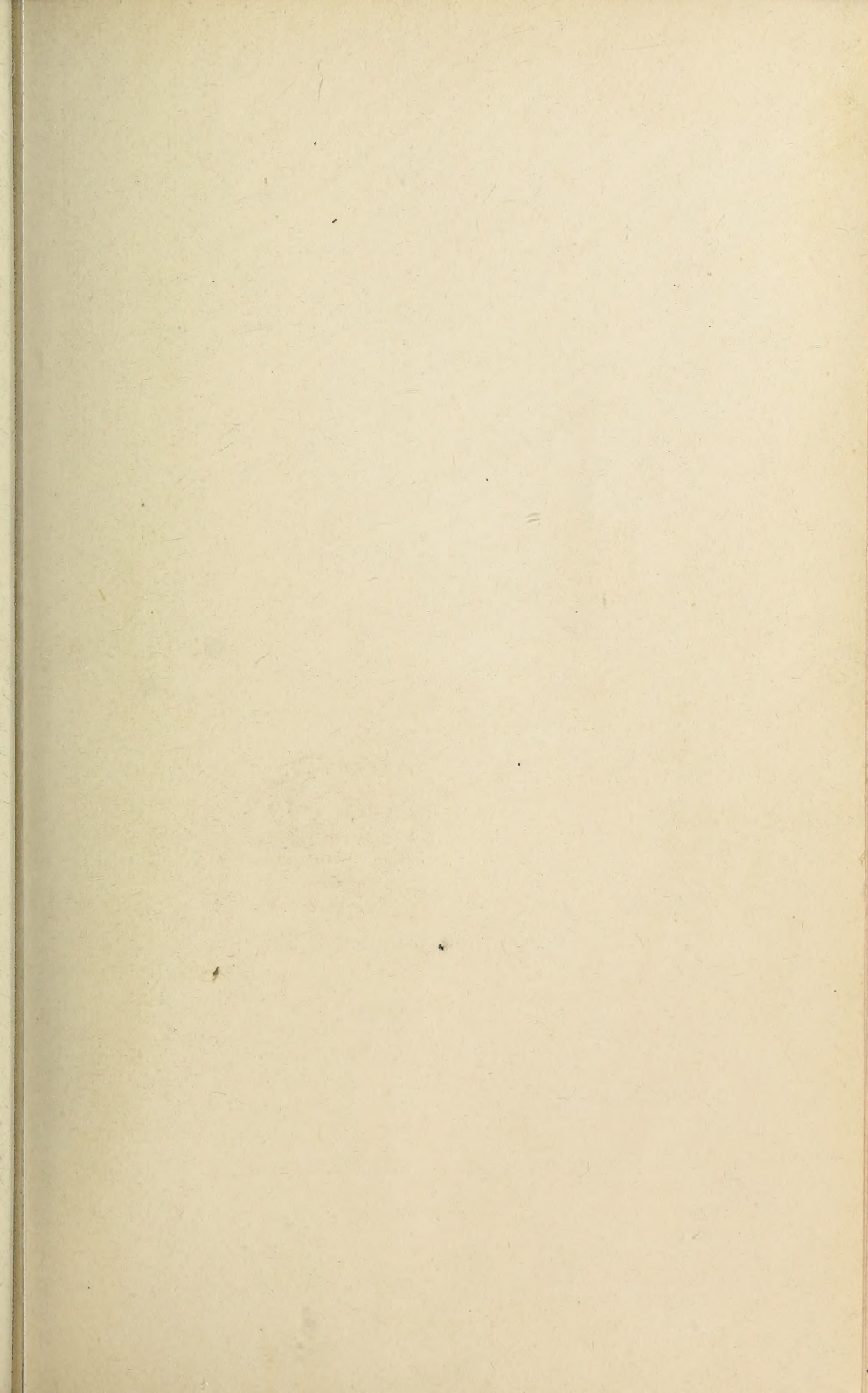
DECEMBER 24TH.—Chaldon 1·14 in.; Abinger (The Rectory) 1·03 in.

DECEMBER 28TH.—Dorking (Denbies) 1·03 in.; Abinger (The Rectory) 1·00 in.



PRESENTED

12 SEP. 1902



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Croydon Natural History and Scientific Society.

OFFICERS FOR 1902.

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- Vice-Presidents.—EDWARD LOVETT; HENRY T. MENNELL, F.L.S.;
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- Hon. Lanternist.—J. H. BALDOCK, F.C.S.
- Hon. Librarian.—ALFRED ROODS.
- Hon. Treasurer.—F. J. TOWNEND, *11, Park Hill Rise, Croydon.*
- Council.—W. BRUCE BANNERMAN, F.S.A., F.G.S.; J. EDMUND
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